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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[Field of the Invention]

[0001]

(Field of invention)

This invention relates to the system and approach for more specifically completing a financial transaction using radio frequency discernment (RFID) in contact and a non-contact environment of completing dealings.

[Background of the Invention]

[0002]

(Background of invention)

RFID(s), such as a bar code and a voice data entry, are non-contact information gathering techniques. A RFID system is wireless and usually effective especially in the poor environment where the conventional collecting method does not function. RFID is fixed to extensive commercial scenes, such as a trace of migration objects, such as read-out of the high speed of for example, a railroad container, livestock, or an automobile, and an application of merchandise inventory control. Therefore, the RFID technique has taken automatic data acquisition, discernment, and the lead in an analysis system globally.

[0003]

Recently, a company is taking in RFID data-gathering technique with the gestalt of FOBU or a tag, in order to use, in case a financial transaction is completed. Typical FOBU is the device which may usually be contained in the portable form factor of arbitration, including a transponder and which contained all required functions. In some examples, in order to carry out an electric power supply to a transponder, a dc-battery may be contained with FOBU. Or FOBU may exist, without being dependent on an internal electrical power source. In this case, the internal circuitry (a transponder is included) of FOBU can pull out that operating power from a dc-battery power source. Or FOBU may exist, without being dependent on an internal electrical power source. In this case, the internal circuitry (a transponder is included) of FOBU can gain that operating power from RF appeal signal directly. U.S. Pat. No. 5,053,774 published by Schuermann indicates the typical transponder RF appeal system which may be found out by the conventional technique. A patent of Schuermann indicates the electric power supply technique about the conventional transponder structure generally. U.S. Pat. No. 4,739,328 indicates how the conventional transponder can answer RF appeal signal. Other typical modulation techniques which may be used contain for example, ISO / IEC14443 grade.

[0004]

In the conventional FOBU current supply technique used, FOBU will be activated, if it appeals for FOBU and usually provides for a signal. About this point, FOBU is not concerned with whether a user asks for such activation, but may be activated. Careless offer of FOBU may bring about the initiation and completion of dealings which are not a request. Therefore, the user of FOBU controls activation of FOBU and the FOBU system which makes it possible to restrict that dealings are completed also unnecessarily is needed.

[0005]

One of the clearer use of a RFID technique is found out by installation of the EasyPay (R) product of Speedpass (R) of Exxon/Mobil, and Shell. The transponder arranged at FOBU or a tag is used for these products. FOBU or a tag enables automatic discernment of a user, when a point-of-sale (POS) device is provided with FOBU. The discernment data of FOBU are usually passed to the database of the 3rd person server, and it refers for discernment data about a customer's (for example, user) credit, or DEBITTO account here. In the case of an instantiation-approach, a server asks for license of dealings by passing dealings and accounting data to a license entity. Once license is received by the server, authorization (clearance) will be transmitted to the point-of-sale device for completing dealings. Thus, the conventional

dealings approach includes the indirect path which causes unjust indirect costs, in order to use the 3rd person server.

[Description of the Invention]

[Problem(s) to be Solved by the Invention]

[0006]

While FOBU dealings are approved, the dealings license system which makes it possible to remove the cost relevant to using the 3rd person server is required.

[0007]

Furthermore, conventional FOBU is restricted in that these must be used near the point-of-sale device. That is, in order to activate FOBU, conventional FOBU must be arranged at transmission within the limits by which the cast is carried out with RF appeal signal. More specifically, conventional FOBU is not effective in use in the situation that a user wishes to trade at the point of two-way communication, such as a computer interface.

[0008]

Therefore, there is the need for FOBU which materializes the RFID collection technique which can conduct dealings easy through the computer interface which could use at the point of a two-way communication device, and was connected with the network (for example, Internet).

[0009]

The existing transponder-reader payment system is restricted in that conventional FOBU used in a system answers only one appeal signal further. When two or more appeal signals are used, FOBU answers only the appeal signal constituted so that it might answer. Therefore, when the RFID reader of a system offers only an appeal signal without FOBU and compatibility, FOBU is not activated appropriately.

[0010]

Therefore, FOBU which answers one or more appeal signals is required.

[0011]

The existing transponder-reader payment system is further restricted in that a payment system is linked to the source of financing related with the transponder which usually contains predetermined maximum payment. Therefore, flexibility is not offered when the payment which exceeds predetermined maximum payment is requested. This has it at the point of including the comparison with the maximum payment or the amount of money stored in the data file of the preloaded value, before the traditional method of usually processing the requested dealings provides a customer with license of dealings. [true]

[0012]

Therefore, the system which processes the request of transponder-reader payment is needed regardless of the maximum payment assigned to the related source of transponder-reader payment system financing.

[0013]

Furthermore, a traditional transponder-reader system does not permit that a user manages system user account data. This has very many problems, when a user wishes to change the source of transponder-reader system financing into the source which offers the room of available maximum payment, or when only wishing to be modification in a user's condition (for example, the address, the telephone number, an e-mail, etc.), for this reason for a transponder-reader account provider to update a user's account.

[0014]

Therefore, in order to manage accounting data, the transponder-reader system by which a user enables access restricted to transponder-reader account is needed.

[0015]

Furthermore, unlike the credit card or charge card relevant to FOBU, the existing transponder-reader system does not usually permit the means which carries out the motivation of the use of FOBU relevant to a system automatically. That is, the conventional transponder-reader system does not offer the means which carries out the motivation of the transponder-reader system use by carrying out the motivation of the use of a FOBU product. This system is because between a system transponder and account of the charge card relevant to a transponder or a credit card is not fully distinguished.

[0016]

Therefore, the case where a system transponder is used is determined and the transponder reader which can offer the motivation of use like a parenthesis is needed.

[0017]

Furthermore, this system is restricted in that use of a credit card or a charge card and use of FOBU cannot be pursued, when these systems have a single source of financing. For example, in the system of the typical conventional technique,

FOBU may be linked to the sources of financing of the convention which may be used in order to offer the fund which fills a dealings request (for example, American Express, MasterCard, Visa, etc.). The source of financing may have further the consumer credit or charge card which may be related with FOBUs and may be used for contact dealings. A card user is provided with the statement which reports use of a card when a credit card or a charge card is used. However, a report statement includes the report of FOBUs product use. Therefore, a FOBUs user cannot do the comparison with use of the suitable card or use of FOBUs diagrammatized, analyzed or related. This has many especially problems, when the source of financing is used by one or more entities (for example, a spouse, two or more employees, etc.), or when one entity can use FOBUs and a separate entity can use the card relevant to the FOBUs.

[0018]

Therefore, the transponder-reader payment system which makes it possible to report use of FOBUs and use of a credit card by the single file is needed.

[Means for Solving the Problem]

[0019]

(Summary of invention)

The system and approach of using a RFID technique, and starting and completing a financial transaction are indicated in this specification. The transponder-reader payment system indicated in this specification may contain the RFID reader which can operate so that RF appeal signal for carrying out an electric power supply to a transponder system, and receiving a transponder system RF signal, and offering transponder system accounting data in relation to a transponder system RF signal may be offered. A transponder-reader payment system can be equipped with USB or the serial interface for using, in case the PASONA rise of the RFID authentication circuit and RFID reader, and/or transponder for attesting the signal received from the RFID protocol / sequence controller who telecommunicates with one or more appeal transponders for providing a transponder with an appeal signal, and the transponder is carried out. A transponder-reader payment system can be further equipped with FOBUs for offering the authentication signal for verifying that it was approved that a transponder and/or a RFID reader operate within a transponder-reader payment system including one or more transponders (for example, module) which answer one or more appeal signals. Thus, FOBUs can answer two or more appeal signals offered on a different frequency. Furthermore, FOBUs may contain USB or the serial interface for using it using a computer network or a RFID reader.

[0020]

The RFID system and approach by this invention may contain the transponder which it is possible for shape to be taken by other form factors (for example, a wrist watch, a key chain, a cellular phone, etc.) of FOBUs, a tag, a card, or arbitration, and to be provided for appeal, and is obtained. In this point, although it is indicated that a transponder is materialized by FOBUs in this specification, this invention is not limited such.

[0021]

A system is further equipped with the RFID reader constituted so that the stationary RFID recognition signal which may be transmitted from RFID through radio frequency (or electromagnetism) propagation might be transmitted. FOBUs may be arranged near the RFID reader so that a RFID signal can call to FOBUs and can start a FOBUs discernment procedure.

[0022]

In an instantiation-1 operation gestalt, FOBUs and a RFID reader can be engaged in mutual recognition as a part of discernment process. If a RFID reader contains the system transponder by which it was approved for receiving the enciphered information and storing the information in FOBUs memory, it can identify FOBUs. Similarly, if it appeals for FOBUs by the RFID reader, it can identify that receiving the information in which the RFID reader was enciphered and stored was approved. When a RFID reader and FOBUs attest each other with the sufficient result, FOBUs can transmit the specific information that the dealings account (an unit or plurality) to which FOBUs relates is identified to a RFID reader. A RFID reader receives information, and passes information, and can make completion of dealings easy. In an instantiation-1 operation gestalt, a RFID reader can transmit information to the point of a two-way communication device (for example, POS or a computer interface), in order to complete dealings. The mutual recognition process indicated in this specification supports guaranteeing transponder-reader payment system security.

[0023]

In another instantiation-operation gestalt, FOBUs by this invention includes a means to complete dealings through a computer interface. In case it may connect with a computer using USB or a serial interface and FOBUs completes dealings through a network (for example, Internet), in order to use it, FOBUs account information may be transmitted to a computer.

[0024]

In still more nearly another instantiation-operation gestalt of this invention, the system to which use of a transponder-reader system transponder (for example, FOBU) is urged is offered. This system distinguishes between use of FOBU which shares the same source of financing as FOBU, and charges or use of a credit card. When FOBU is used, a system can provide a user with the motivation based on the criteria determined in advance by the FOBU issuer. Furthermore, when the preloaded FOBU system is used, this invention recognizes the time of funds being loaded to a related FOBU preloading value data file, or reloading. This invention can offer the remuneration point (reward point) further based on the criteria relevant to loading or a reloading action. Furthermore, the system by this invention can carry out the motivation of a customer's special agreement. In this case, a system can receive a FOBU dealings request based on the marker or other identifiers relevant to a customer, and it carries out the motivation to a FOBU user. A marker may be contained in discernment of dealings, the customer discernment offered by dealings, or the combination of both these.

[0025]

In still more nearly another instantiation-operation gestalt of this invention, the system which enables a FOBU user / owner, as for a system, to manage the account relevant to FOBU is indicated. For example, a user is provided with all or partial FOBU account information stored in the account provider database for updating population statistical information, the source of account financing, and/or account constraint (for example, maximum payment, a personal identification number, etc.). A user may be provided with access to all or partial account by the telephone through an off-line communication link through a network (for example, online). For example, access to the system with which the FOBU user delayed the communication link with an account provider database may be offered, and such a system may contain the kiosk which provides for example, an account provider system with batch transmission here. Thus, a FOBU user / owner can update account information to the time amount which receives the information which is real time (with for example, a telephone or online) or, by which the account provider was updated in account information (for example, off-line).

[0026]

In the further instantiation-operation gestalt, this invention offers the approach of processing a dealings request, and thereby, before requesting financing from the source of financing, and/or before verifying that the amount of money for completing dealings is available, the amount of a dealings request may be recognized. Thus, dealings may be recognized when dealings and/or account meet the specific predetermined license criteria. Once the criteria are met, the agent (for example, customer) who dealings are attested and requests will be provided with authentication. In one example, the payment to dealings is requested from the source of financing to offer and coincidence of the authentication to a customer, or immediately after. In another example, the payment of dealings is requested to the period after the time of a customer being provided with license.

[0027]

The structure of these descriptions of a system and an approach, other advantageous points, a system, and the various instantiation-operation gestalten of an approach and actuation are indicated below.

[0028]

The attached drawing which the same sign shows the same element shows the instantiation-operation gestalt of this invention, and it is used in order to explain the principle of this invention with a publication.

[Best Mode of Carrying Out the Invention]

[0029]

(Detailed explanation)

this invention -- the following -- setting -- a functional-block component and a screen shot (screen shots) -- selection and various down stream processing may be indicated suitably. Such functional block may be realized by a number of arbitration of the hardware and/or the software components constituted so that a specific function might be performed. For example, various integrated-circuit components, such as a memory device which can perform functions various in the bottom of control of one or more microprocessors or other control devices, a processing component, a logic component, and a look-up table, can be used for this invention. Similarly, the software component of this invention performs a program or a script for language, such as C, C++, Java (R), COBOL, assembler, PERL, extensible markup language (XML), and Java(R) Card and MULTOS, to arbitration, and is realized, and various algorithms may be realized by the combination of the arbitration of DS, an object, a process, a routine, or other program components. Furthermore, this invention should care about that the conventional technique of the number of arbitration, such as data transmission, signal transduction, data processing, and network control, can be used. About fundamental guidance of the encryption approach, it is Bruce. Please examine the text (John Wiley & Sons publication (the 2nd edition, 1996)) (used into this specification for reference) called "Applied Cryptography:Protocols, Algorithms, and Source Code in C" which were written by Schneier.

[0030]

Furthermore, two or more applications of this invention may be defined. The instantiation-network indicated in this specification may contain the system of the arbitration for dealings on the data exchanges, such as the Internet, intranet, extranet, WAN and LAN, and satellite communication, or business. A network should care about that it may realize as a network of other types, such as a two-way communication television network (ITN).

[0031]

A system user can do two-way communication to a system through the input device of arbitration, such as a keypad, a keyboard, a mouse, a kiosk, a Personal Digital Assistant, a hand held computer (for example, Palm Pilot (R), Blueberry (R)), and a cellular phone, if needed. the same -- this invention -- the personal computer of the type of arbitration, a network computer, a workstation, a minicomputer, a main frame, etc. -- coordinating -- Windows (R) of the version of arbitration, and Windows (R) NT -- Windows -- (R) -- 2000 -- Windows -- (R) -- 98 -- Windows -- (R) -- 95 -- MacOS -- OS/2 -- BeOS -- Linux -- UNIX -- (R) -- Solaris -- etc. -- arbitration -- an operating system -- operating -- making -- using -- having -- obtaining . Furthermore, although it may be indicated that this invention is realized by the TCP/IP communications protocol, please understand that it may be realized even if the communications protocol of the number of SNA, IPX, Appletalk, IPX, NetBIOS and OSI, or arbitration is used for this invention. Furthermore, this system takes into consideration having the same functionality indicated in this specification in use of the goods of the arbitration through the network of arbitration, sale or delivery, service, or information.

[0032]

Drawing 1 A shows instantiation-RFID trading system 100A by this invention, and the instantiation-component for using, in case FOBU dealings are completed is shown here. Generally, actuation of system 100A can be started, when FOBU 102 is offered for payment and it calls out with the RFID reader 104 or an interface 134. In FOBU 102 and the RFID reader 104, a transponder 102 can provide the RFID reader 104 with transponder discernment and/or an account identifier after that by the ability being engaged in mutual recognition after that, and a RFID reader can provide the customer system 130POS device 110 with information further.

[0033]

System 100A may contain the RFID reader 104 which carries out RF communication link with FOBU 102 which has a transponder 114, and FOBU 102. Although this invention is indicated about FOBU 102, this invention should not be limited such. A system 100 may actually contain the device of the arbitration which has the transponder constituted so that it might communicate with the RFID reader 104 through RF communication link. A typical device may include such a gestalt of the arbitration which can be provided for a key-ring, a tag, a card, a cellular phone, a wrist watch, or appeal.

[0034]

The RFID reader 104 may be constituted so that it may communicate using the interior antenna 106 of RFID. Or the RFID reader 104 is **** with remote ** from the RFID reader 104 for which the external antenna 108 for communicating with FOBU 102 may be included, and an external antenna uses an appropriate cable and/or a data link 120 here. The RFID reader 104 can communicate with the customer system 130 through a data link 122 further. System 100A may contain the completion system of dealings including the point of a customer's point-of-sale (POS) device 110 or the two-way communication device of computer interface (for example, user interface) 134 grade. In an instantiation-1 operation gestalt, the completion system of dealings may contain the customer system 130 containing the POS (data link 122 is minded) device 110 which communicates with the RFID reader 104. The completion system of dealings may contain the user interface 134 connected to a network 136 and a transponder through the USB connector 132 so that it may be later mentioned by the detail.

[0035]

Although the point of a two-way communication device is indicated about a customer point-of-sale (POS) device in this specification, this invention must have been limited to this. A customer POS device is actually used in instantiation in this specification, and the point of a two-way communication device may be the device of the arbitration which can receive FOBU accounting data. POS may be the point of the arbitration of the two-way communication device which enables a user to complete dealings about this point using FOBU 102. The POS device 110 can communicate with the customer interface 118 (a data link 128 is minded) for inputting at least one customer discernment verification information further. Furthermore, the POS device 110 can communicate with the customer host network 112 (a data link 112 is minded) for processing the dealings request of arbitration. With this configuration, the POS device 110 of the customer system 130 is provided with the information offered by the RFID reader 104 through a data link 122. The POS device 110 can receive information (or the discernment verification information on arbitration can be received from the customer interface 118 through a data link 128), and in order to process the information on a parenthesis, it

can provide a host system 112 with it.

[0036]

The various conventional communication media and protocols may be used for data links 120, 122, 124, and 128. For example, data links 120, 122, 124, and 128 may be the Internet Service Providers (ISP) constituted so that it might make it easy to usually communicate through the local loop which connects with a standard modem communication link, a cable modem, a dish network, ISDN, a digital subscriber line (DSL), or the wireless communication media of arbitration, and is used. Furthermore, the customer system 130 including the POS device 110 and the host network 112 can reside in the Local Area Network which makes interface connection with the remote network for license of RIMOTO of the meant dealings (not shown) permanently. The customer system 130 can communicate with a remote network through dedicated lines, such as T1 and D3 line. Such a communication wire is Gilbert. It is indicated by various reference, such as "Understanding Data Communications" (used into this specification for reference) etc. by Held.

[0037]

the account number used by this detail letter may contain the identifier of the arbitration of the account (for example, a credit, charge DEBITTO, a temporary, usually remuneration, special agreement, etc.) which may be used in order to be maintained by the dealings account provider (for example, payment license pin center, large) and to complete a financial transaction. A typical account number (for example, accounting data) is American. It may correlate with the credit maintained and served by entities, such as Express (R), Visa (R), and/or MasterCard (R), or account of DEBITTO, special agreement account, or remuneration account. In order to make an understanding easy, this invention may be indicated about credit account. However, this invention should care about that it is taken into consideration that other account which enables exchange of the goods about an accounting-data value and service is within the limits of this invention rather than should be limited such.

[0038]

Furthermore, an account number (for example, accounting data) may be related with other identifier/marks which were appropriately constituted so that the device, code, or consumer of arbitration might make it possible a system and two-way communication, such as for example, license/access code, a personal identification number (PIN), the Internet code, a digital certificate, biometry data, and/or other discernment marks, or to communicate. An account number may be arranged suitably alternatively at a remuneration card, a charge card, a credit card, a debit card, a prepaid card, a telephone card, a smart card, a magnetic-strip card, a bar code card, etc. An account number may be distributed and stored in the plastics, the electron, MAG, and/or optical device of a gestalt of the arbitration which can transmit or download data to the 2nd device. Although a customer account number may be a 16-digit credit card number, each credit provider is American. It has numbering systems of a proper, such as numbering of 15 figures used by Express (R). Thereby according to the format by which, as for the credit card number of each company, the company was standardized, the company using a 16-figure format uses the set of four figures which are expressed in the figure of "0000 0000 0000 0000" and which usually kept spacing. In a typical example, 5-7 figures of the beginning are specified in order to identify the processing purpose and an issuing bank, a card type, etc. In this example, the last digit [16th] is used as a sum check of a 16-digit number. 8-10 middle figures are used in order to identify a customer uniquely. The account number stored as Track [which is defined as ISO/IEC7813]1 and Track2 data may be uniquely created by FOBU 102. In an instantiation-1 operation gestalt, an account number may contain an unique FOBU serial number, a user-identification number, and a specific application applet. An account number may be stored in FOBU 102 inside a database 214 so that it may be later mentioned more by the detail. A database 214 may be constituted so that two or more account numbers published by the user of FOBU 102 with an account offer engine which is the same or is different may be stored. When accounting data correspond to special agreement or remuneration account, a database 214 may be constituted so that incidental remuneration or remuneration point data may be stored.

[0039]

Drawing 2 is the block diagram showing much functional block of instantiation-FOBU 102 by this invention. FOBU 102 may be RFID FOBU 102 which may be presented by the user, in order to make easy exchange with goods or the reception of service, a fund, or the point. As indicated according to an example on these specifications, FOBU 102 may be RFID FOBU which may be shown in order to make payment to goods and/or service easy.

[0040]

FOBU 102 may contain the antenna 202 which receives the interrogation signal from the RFID reader 104 through an antenna 106 (or external antenna 108). The FOBU antenna 202 can communicate with a transponder 114. In 1 operation gestalt, a transponder 114 may be a 13.56MHz transponder based on ISO/IEC14443 specification, and an antenna 202 may be a 13MHz type. A transponder 114 can communicate with the modulator / demodulator 206 which

is compatible with a transponder. A modulator / demodulator 206 is constituted so that the signal from a transponder 114 may be received, and it is constituted so that a signal may be modulated to the format in which read-out is possible by the circuit where it connects behind. furthermore, a modulator / demodulator 206 formats the signal received from the circuit connected behind into the transponder 114 which transmits to the RFID reader 104 through an antenna 202, and a compatible format -- it may be constituted like (for example, it becomes irregular). For example, when a transponder 114 is a 13.56MHz type, a modulator / demodulator 206 can be based on ISO/IEC 14443-2.

[0041]

A modulator / demodulator 206 may be connected to a protocol / sequence controller 208. A protocol / sequence controller 208 makes easy control of authentication of the signal offered by the RFID reader 104, and makes easy control of transmission of the account number of FOBU 102. A protocol / sequence controller 208 may be suitable digital one of arbitration or the logic drive circuits which can make easy the decision of a sequence of operation of the internal circuitry of FOBU 102 at this point. For example, a protocol / sequence controller 208 may be constituted so that it may determine whether the signal offered by the RFID reader 104 is attested, and thereby, he supplies the account number stored in FOBU 102 to the RFID reader 104.

[0042]

A protocol / sequence controller 208 can communicate with the authentication circuit 210 which makes easy further authentication of the signal offered by the RFID reader 104. An authentication circuit can communicate with the non-volatile secure memory database 212 further. The secure memory databases 212 may be other fundamental file systems of the arbitration which makes it possible to interpret the look-up table of the fundamental file system for which arbitration which is defined by ISO/IEC 7816-4 was suitable, or data by the application on a chip. A database 212 may be a database of the type of arbitration, such as interrelative, hierarchical, and/or object-oriented. The common database product which may be used in order to perform a database is DB2 by IBM (New York State White Plains), and Oracle. The database product of arbitration available from Corporation (California Redwood Shores), Microsoft Microsoft by Corporation (Washington Rodwood) They may be Access, MSSQL, or the database product of other arbitration. the format for which the arbitration in which a database 212 contains a data table or a look-up table was suitable -- system attachment *****. It may be attained by the data related technique of the arbitration currently carried out by it being well-known in the field concerned to associate a certain data. for example, -- relating -- hand control -- or it may be attained automatically. An automatic related attachment technique may contain for example, a database search, database merge, GREP, AGREP, SQL, etc. A step may be attained by the database merge function by relating by using each "key field" of a manufacturer and a vendor data table. The "key field" divides a database according to the object of the high-level class specified by the key field. For example, a certain class may be specified as the key field in both the 1st data table and the 2nd data table. Two data tables may be merged after that based on the class data in the key field. It is desirable that the data corresponding to each key field of the data table merged with this operation gestalt are the same. However, even if not the same [in the key field], the data table which has similar data may also be merged using AGREP.

[0043]

data -- the purpose of security -- in addition, it may be used by a protocol / sequence controller 208 for date analysis, and may be further used for the purpose of management and control. An authentication circuit can attest the signal offered by the RFID reader 104 by relating a RFID signal with the authentication key in which it was stored by the database 212. The RFID reader 104 or in order to carry out the encryption and/or the decryption of a signal which were sent from the RFID reader 104, the key stored in the database 212 can be used for an encryption circuit.

[0044]

Furthermore, a protocol / sequence controller 208 can communicate with the database 214 which stores the accounting data of FOBU 102, and the FOBU 102 identification code of a proper at least. A protocol / sequence controller 208 may be constituted so that it may take out like a request of the account number from a database 214. A database 214 may have the same configuration as a database 212, as mentioned above. The FOBU accounting data stored in the database 214 and/or the FOBU identification code of a proper may be enciphered before storing. Therefore, when a protocol / sequence controller 208 takes out accounting data or the FOBU identification code of a proper from a database 214, an account number may be enciphered when provided for the RFID reader 104. Furthermore, in addition to a specific application applet, the data stored in the database 214 may contain the data of the FOBU 102 identification code of the proper which is not enciphered, a user identification, and trucks 1 and 2.

[0045]

FOBU 102 may be constituted so that two or more interrogation frequency transmission offered by the RFID reader 104 may be answered. That is, the RFID reader 104 can offer more RF interrogation signals than 1 so that it may state

to a detail by the following. In this case, by including RF-signal reception / transmitting unit 226 of one or more additions in FOBU 102, FOBU 102 may be constituted so that two or more frequencies may be answered. RF-signal reception / transmitting unit 226 may contain an antenna 218 and a transponder 220, and an antenna 218 and a transponder 220 have the RF signal and compatibility of at least one addition which are offered by the RFID reader 104. For example, with 1 operation gestalt, FOBU 102 may contain the 134kHz antenna 218 constituted so that it might communicate with the 134kHz transponder 220. An ISO/IEC14443-2 conformity modulator / demodulator may not be required of this instantiation-configuration. Instead, a 134kHz transponder may be constituted in order to carry out direct communication to a protocol / sequence controller 208 for authentication, transmission of an account number signal, and reception, as mentioned above.

[0046]

In another operation gestalt, FOBU 102 may contain further the Universal-Serial-Bus (USB) connector 132 which makes FOBU 102 interface with a user interface 134. A user interface 134 can communicate with the POS device 110 through a network 136 further. Networks 136 may be the Internet, intranet, etc. as mentioned above about the network 112. Furthermore, a user interface 134 may have the same configuration as the operation system which enables INTARAKUTO [system] the conventional input device and/or the conventional system user who mentioned above of arbitration. FOBU 102 may consist of 1 operation gestalten so that online payment by the Internet may be made easy. The USB converter 222 can communicate with the USB connector 232 which makes easy transfer of the information between a modulator / demodulator 206, and the USB connector 132. Or the USB converter 222 can communicate with a protocol / sequence controller 208, in order to make easy transfer of the information between a protocol / sequence controller 208, and the USB connector 132.

[0047]

When FOBU 102 contains the USB connector 132, FOBU 102 can communicate with the USB port for example, on a user interface 134. The information taken out from FOBU 102 may be compatible with the credit card and/or smart card technique which enable use of the interactive application in the Internet. A RFID reader may not be required of this operation gestalt. The connection with the POS device 110 is because he does as a user interface 134 using the USB port on a network 136.

[0048]

FOBU 102 may include the means which enables activation of FOBU by the user. With 1 operation gestalt, a switch 230 can operate by the user of FOBU 102. The switch 230 on FOBU 102 is used in order to activate FOBU 102 alternatively or comprehensively for a specific application. In this case, as for the vocabulary "alternative", a switch 230 may mean [a user] that FOBU 102 can be made into a specific mode of operation. For example, a user can make it the mode which enables the purchase of goods or service using the account number chosen in FOBU 102. Or the account number of FOBU is offered by only the USB port 132 (or serial port), and use FOBU as the mode with which the FOBU transponder 114 is disabled. Furthermore, the vocabulary "a comprehension target" may mean that FOBU 102 goes into the mode of operation to which FOBU 102 enables it to answer RF interrogation through the USB connector 132. With 1 operation gestalt, it checks not answering to the instruction with which one or more applications or the account relevant to [the switch 230 may have been in an OFF location and] FOBU 102 by this is issued by the RFID reader 104. In this specification, although an OFF location may be defined as the "usual" location of the activation switch 230, other usual locations are considered.

[0049]

With another operation gestalt, when a switch 230 moves from an OFF location, it may be thought that FOBU 102 was activated by the user. That is, a switch 230 can activate the internal circuitry in FOBU 102, in order that FOBU may enable it to answer a RF signal (for example, instruction from the RFID reader 104). Thus, a switch 230 can make easy control of the activity of FOBU 102, and an inactive condition. FOBU 102 of such control is careless -- again -- ** -- the security of a system is increased by preventing illegal use.

[0050]

In 1 operation gestalt, a switch 230 may be a simple machine device which communicates that FOBU can give power by the RFID reader with the circuit which can be prevented electrically. That is, when a switch 230 is in the usual location, a switch 230 can provide the internal circuitry of FOBU 102 with a short circuit, and, thereby, FOBU 102 prevents answering an interrogation through RF or the USB connector 230. With this structure, a switch 230 may be a switch constituted by "it is usually a closed state (NC)." The switch constituted by "usually, the closed state" may be electrically connected to an antenna 202 in the interface of an antenna 202 and a transponder 114. It may be pushed, that can change a switch 230 into an open condition, and, thereby, an antenna 202 activates a switch 230 completely.

[0051]

In the further operation gestalt, if FOBU 102 may contain the biometry sensor and biometry film which were constituted so that it might operate as a switch 230 and a biometry signal can be given from the user of FOBU 102, it will activate FOBU 102. Such biometry signals may be digital read, such as a fingerprint or a thumbmark. Typically, when a biometry circuit is used, a biometry circuit can give power according to an internal voltage source (for example, cell). In this case, a switch may be not a simple machine device but a switch to which power is given. With still more nearly another operation gestalt, although a biometry circuit does not exist in FOBU 102, a switch 230 can give power by the cell.

[0052]

With still more nearly another operation gestalt, a switch 230 may be a logic switch. When a switch 230 is a logic switch, switch 230 control software may be read from a sequence controller 208, and controls activation of various components of FOBU 102 alternatively.

[0053]

Drawing 3 is the instantiation-block diagram of the RFID reader 104 by the operation gestalt of this invention. The antenna 106 is further connected with the control module 304 for the RFID reader 104 including the antenna 106 connected with the RF module 302. Furthermore, the RFID reader 104 may contain the antenna 108 which was located far away from the RFID reader 104, and was connected with the RFID reader 104 through an appropriate cable 120, other cables, or wireless connection.

[0054]

The RF module 302 and an antenna 106 may be appropriately constituted so that the communication link with FOBU 102 may be made easy. When being formatted so that FOBU 102 may receive a signal on specific RF frequency, the RF module 302 may be constituted so that an interrogation signal may be offered on the same frequency. For example, in 1 operation gestalt, FOBU 102 may be constituted so that about 13.56MHz interrogation signal may be answered. In this case, the RFID antenna 106 may be 13MHz, and it may be constituted so that about 13.56MHz interrogation signal may be transmitted. That is, FOBU 102 may be constituted so that 1st and 2nd RF modules (for example, transponder) may be included. The 1st module can operate using the frequency of 134kHz, and 2nd RF module can operate using the frequency of 13.56MHz. The RFID reader 104 may contain two receivers which can operate using the frequency of 134kHz, the frequency of 13.56MHz, or both. When the reader 104 is operating on the frequency which is 134kHz, to FOBU 102, only actuation with a 134kHz module is possible, and it obtains. While the reader 104 is operating on the frequency which is 13.56MHz, to FOBU 102, only actuation with a 13.56MHz module is possible, and it obtains. When a reader 104 supports both the frequencies and 13.56MHz RF modules which are 134kHz, FOBU 102 can receive both signals from a reader 104. In this case, FOBU 102 gives priority to selection of the frequency of one side or another side, and it may be constituted so that the remaining frequency may be refused. Or if it appeals for a reader 104, it can receive the signal of both frequencies from FOBU. In this case, a reader 104 gives priority to selection of the frequency of one side or another side, and it may be constituted so that the remaining frequency may be refused.

[0055]

Furthermore, a protocol / sequence controller 314 may include the feedback function of an option to tell a user about the condition of specific dealings. For example, feedback of an option may be a gestalt of LED, an LED screen, and/or other vision displays. These are static -- it scrolls -- it is constituted so that it may blink and/or other messages and/or signals may be lit up or displayed. Dealings began to the user by this (for example, appeal for FOBU), Dealings are processing [that FOBU is effective (for example, thing for which FOBU was attested),]. (for example, the account number of FOBU being read by the RFID reader) and/or dealings tell acceptance ** or having been refused (for example, not recognized [that dealings were recognized or]). Feedback of such an option may be accompanied by the audible indicator which tells the user of FOBU 102 about transaction status, and does not need to be accompanied by it (or only an audible indicator may be shown). Audible feedbacks may be the single tone constituted so that when it appealing for FOBU 102, transaction status, etc. might be expressed, two or more tones, a music indicator, and/or a voice indicator.

[0056]

The RFID antenna 106 transmits an interrogation signal and can communicate with the transponder 306 which receives either [at least] an authentication demand signal or accounting data from FOBU 102. A transponder 306 may have the same configuration as the transponder 114 of drawing 2. Especially, a transponder 306 may be constituted so that a RF signal may be transmitted and/or received in the format which is the same format as what was indicated about the FOBU transponder 114, and is compatible with an antenna 202. For example, a transponder 306 is 13.56MHz. When it is RF rate, an antenna 202 may be compatible with 13.56MHz. Similarly, when a transponder 306 is ISO/IEC14443 rate, an antenna 106 may be compatible with ISO/IEC14443.

[0057]

The RF module 302 may contain the transponder 306 which communicates with the authentication circuit 308 which can communicate with the secure database 310. The authentication circuit 308 and a database 310 have the same configuration as what was mentioned above about the authentication circuit 210 and the secure memory database 212 of drawing 2, and can operate similarly. For example, a database 310 can store the data corresponding to FOBU 102 which had it attested to trade on a system 100. In case it attests whether it is approved that a database 310 is provided with the FOBU account number with which the RFID reader 104 can be stored and the RFID reader 104 is further stored in the FOBU database 214 by that cause, in order to use, the information with which FOBU 102 is provided is identified.

[0058]

The authentication circuit 308 has the same configuration as the authentication circuit 210, and can operate similarly. That is, the authentication circuit 308 may be constituted so that the signal which is the format same with it being constituted so that the authentication circuit 210 may attest the signal offered by the RFID reader 104, and is offered by FOBU 102 may be attested. Mutual recognition of FOBU 102 and the RFID reader 104 is carried out, and they suit so that it may state to a detail by the following. In this case, "mutual recognition" may mean that actuation of a system 100 may not be performed until FOBU 102 attests the signal from the RFID reader 104 and the RFID reader 104 attests the signal from FOBU 102.

[0059]

Drawing 4 is the flow chart of the instantiation-authentication process by this invention. As for the authentication process, the whole surface is shown. That is, the flow chart shows the process of the RFID reader 104 which attests FOBU 102, and when FOBU 102 attests the RFID reader 104, the same step may continue.

[0060]

As mentioned above, a database 212 can store the security key which enciphers or decrypts the signal received from the RFID reader 104. In an instantiation-authentication process, when the RFID reader 104 has attested FOBU 102, the RFID reader 104 can offer the interrogation signal over FOBU 102 (step 402). An interrogation signal may contain the random code generated by the RFID reader authentication circuit 210. FOBU 201 is provided with the RFID reader authentication circuit 210, and it is enciphered using the encryption key of the proper corresponding to the identification code of FOBU 102 proper. For example, a protocol / sequence controller 314 can offer the instruction which activates the authentication circuit 308. The authentication circuit 308 can offer the FOBU interrogation signal which contains a random number from a database 310 as a part of authorization code generated for [each] authentication signals. An authorization code may be an alphanumeric code (for example, read is possible) which can be recognized by the RFID reader 104 and FOBU 102. FOBU 102 may be provided with an authorization code through the RFID reader RF interface 306 and an antenna 106 (or antenna 108).

[0061]

FOBU 102 receives an interrogation signal (step 404). The interrogation signal containing an authorization code may be received with the RF interface 114 through an antenna 202. Once FOBU 102 is activated, the interrogation signal containing an authorization code may be modulated, before being provided for a modulator / demodulator circuit 206 and providing a protocol / sequence controller 208 with a signal there. A protocol / sequence controller 208 can recognize an interrogation signal as a demand to authentication of FOBU 102, and can provide the authentication circuit 210 with an authorization code. FOBU 102 can encipher an authorization code after that (step 406). Especially encryption may be performed by the authentication circuit 210. The authentication circuit 210 provides a protocol / sequence controller 208 with the authorization code which received the authorization code, could encipher the code and was enciphered after that. FOBU 102 can provide the RFID reader 104 with the authorization code enciphered after that (step 408). That is, the RFID reader 104 may be provided with the enciphered authorization code through a modulator / demodulator 206, the RF interface 114 (for example, transponder 114), and an antenna 202.

[0062]

The RFID reader 104 receives the enciphered authorization code after that, and can decrypt it (step 410). That is, the enciphered authorization code may be received with an antenna 106, and the authentication circuit 308 may be provided with the RF interface 306. The authentication circuit 308 may be provided with a security authentication key (for example, transponder system decryption key) from a database 310. An authentication key can be used for an authentication circuit in order to decrypt the enciphered authorization code (for example, a lock is removed). An authentication circuit may be provided with an authentication key based on the identification code of FOBU 102 proper. For example, the enciphered authorization code may be offered with the FOBU 102 identification code of a proper. An authentication circuit receives the identification code of FOBU 102 proper, and can pick out the transponder

system decryption key correlated with the FOBU 102 identification code of a proper from a database 310. This taken-out authorization code is used in order to decrypt the enciphered authorization code.

[0063]

Once an authorization code is decrypted, at step 402, the decrypted authorization code will be compared with the authorization code offered by the RFID reader 104 (step 412), and will verify the justification. When the decrypted authorization code is not possible (for example, recognition is possible) in read, as for FOBU 102, it is not approved by the authentication circuit 308 -- ** (for example, it does not verify) -- it is regarded (step 416) and actuation of a system 100 is ended (step 418). On the contrary, when the decrypted authorization code can recognize by FOBU 102 (for example, it verified), it is considered that the decrypted authorization code is what was attested (step 412), and it becomes possible to advance dealings (step 414). With one specific operation gestalt, before the RFID reader 104 attests FOBU 102 with advancing dealings, it may mean that FOBU 102 can attest the RFID reader 104. However, before FOBU 102 attests the RFID reader 104, it must be clear that the RFID reader 104 can attest FOBU 102.

[0064]

It should mind -- in an instantiation-verification process, I hear that the authentication circuit 308 can determine whether to be the same as that of the authorization code offered at step 402, and it has in it the authorization code which had the lock removed. If a code is not the same, it will not be approved that FOBU 102 accesses a system 100. Identity is not required although a verification process is described in relation to identity. For example, the authentication circuit 308 can verify the decrypted code through the protocol, step, or process of the arbitration which determines whether correspond to FOBU 102 by which the decrypted code was approved.

[0065]

The authentication circuit 308 can communicate with the protocol / sequence controller 314 who operates like the protocol / sequence controller 208 of drawing 2 further, and has the same configuration. That is, a protocol / sequence device controller 314 may be constituted so that the order of actuation of the component of the RFID reader 104 may be determined. For example, drawing 5 shows the instantiation-decision process that a protocol / sequence controller 314 can operate. A protocol / sequence controller 314 can order the component with which the RFID readers 104 differ based on whether FOBU 102 exists (step 502). For example, when FOBU 102 does not exist, a protocol / sequence controller 314 can order to offer the interrogation signal which is not interrupted to the RFID reader 104. (Step 504). That is, a protocol/sequence controller can order to offer the interrogation signal which is not interrupted until existence of FOBU 102 is recognized to the authentication circuit 308. When FOBU 102 exists, a protocol / sequence controller 314 can order to attest FOBU 102 to the RFID reader 104. (Step 506).

[0066]

As mentioned above, authentication may mean that a protocol / sequence controller 314 can order to provide FOBU 102 with an authorization code to the authentication circuit 308. When a response is received from FOBU 102, a protocol/sequence controller can determine whether be the signal for which whether a response being a response to the RFID reader 104 to which the authorization code's was given, and a response need authentication (step 508). When a signal needs authentication, a protocol / sequence controller 314 can activate an authentication circuit, as mentioned above (step 506). On the other hand, when FOBU 102 is the response to the offered authorization code, a protocol / sequence controller 314 can order to take out the suitable security key which enables recognition of a signal to the RFID reader 104. (Step 510) . That is, to the authentication circuit 308, a protocol / sequence controller 314 picks out a security key (for example, transponder system decryption key) from a database 310, removes the lock of a signal in an authentication process (for example, step 506), and can order to compare the signal with the signal offered by the RFID reader 104. When the signal has been recognized, a protocol / sequence controller 314 can determine that he approved that FOBU 102 accessed a system 100. When a signal is not recognized, it is thought that FOBU 102 is not approved. In this case, a protocol / sequence controller 314 can order what it appeals for to approved FOBU to a RFID controller. (Step 504) .

[0067]

Once a protocol/sequence controller determines that FOBU 102 was approved, a protocol / sequence controller 314 can try to determine whether the additional signal is sent by FOBU 102 (step 514). When the additional signal is not offered by FOBU 102, since a protocol / sequence controller 314 is idle states until a signal is offered, he can offer all the components of the RFID reader 104 (step 516). on the contrary, a return authentication (for example, mutual) of whether, as for a protocol / sequence controller 314, FOBU 102 demanding access of the customer point of the selling terminal 110 (for example, POS device), when FOBU 102 additional signal is offered, and FOBU 102 sake -- the RFID reader 104 -- appeal -- it can determine whether suppose like or not (step 518). When FOBU 102 is demanding access of the customer point of the selling terminal 110, a protocol / sequence controller 314 can order to open the

communication link with the point of the selling terminal 110 to the RFID reader 104. (Step 524) . Especially, to the selling terminal point communication link interface 312, a protocol / sequence controller 314 can order to become active, and, thereby, enables transmission of the data between the RFID reader 104 and the customer point of the selling terminal 110.

[0068]

On the other hand, when a protocol/sequence controller determines that FOBU 102 signal is a mutual interrogation signal, a protocol/sequence controller can order to encipher a signal to the RFID reader 104. (Step 520) . A protocol / sequence controller 314 can order to answer the mutual interrogation signal of FOBU 102 and to pick out a suitable encryption key from a database 320 to the encryption authentication circuit 318. A protocol / sequence controller 314 can order to provide FOBU 102 with the enciphered mutual interrogation signal to the RFID reader 104 after that. Since a protocol / sequence controller 314 attests mutually to the authentication circuit 318, he can order to provide FOBU 102 with the enciphered mutual interrogation signal. FOBU 102 receives the enciphered mutual interrogation signal after that, and can take out a RFID reader decryption key from the authentication circuit 212.

[0069]

Although the instantiation-decision process of a protocol / sequence controller 314 has been described, in case the component of FOBU 102 is controlled, it should be understood that the same decision process may be taken by a protocol / sequence controller 208. As mentioned above, a protocol / sequence controller 314 operates like a protocol / sequence controller 218, and may actually have the same design. The device with which a protocol / sequence controllers 208 and 314 can incorporate the suitable instruction with which the USB interfaces 222 and 316 are enabled in a decision process in addition to the above, but this corresponds is the case where it connects such.

[0070]

Encryption/decryption component 318 can communicate with the secure account number database 320 which stores a security key required in order to decrypt the enciphered FOBU (fob) account number further. By the suitable request from a protocol / sequence controller 314, encryption/decryption component (for example, circuit 318) can take out a suitable security key, the FOBU account number is decrypted, and the account number decrypted in the format of the arbitration which can be read by the POS device 110 connected after arbitration is transmitted to the protocol sequence controller 314. At a 1 instantiation-operation gestalt, an account number is ISO/IEC. It may be transmitted in the conventional magnetic-stripe format which is compatible with 7813 specification. That is, according to this invention, it is not necessary to make an account number change or correlate with the conventional magnetic-stripe format which is performed using the conventional technique. This invention processes a dealings request directly as if the card related with account was shown to payment.

[0071]

If the account number of a magnetic-stripe format is received, a protocol / sequence controller 314 can transmit an account number to the POS device 110 through the communication link interface 312 and a data link 122, as shown in drawing 1 best. In order that the POS device 110 may process the decrypted account number as usual specification in the business of reception and a customer, the account number by which the magnetic-stripe format was carried out can be transmitted to the customer network 112. Thus, this invention removes the need for a third person server. furthermore, the case (for example, approved dealings which were dealt with or refused) where the POS device 110 receives the response from a network 112 -- a protocol / sequence controller 314 -- the response to FOBU 102 user --** -- in order to communicate visually and/or in audible, the RF module 302 can be provided with a network response.

[0072]

The RFID reader 104 includes further the USB interface 316 which communicates with a protocol / sequence controller 314. With 1 operation gestalt, a USB interface may be RS22 serial-data interface. Or the RFID reader 104 may contain serial interfaces, such as RS232 interface which communicates with a protocol / sequence controller 314. The USB controller 316 can communicate with the par SONARIZESHON system 116 (shown in drawing 1 B) for initializing the RFID reader 104 in the application parameter of a system 100. That is, before actuation of a system 100, the RFID reader 104 communicates with the par SONARIZESHON system 116, in order to bring together the list of security keys belonging to approved FOBU 102 in a database 310, and in order to bring a security key together in a database 320, and the account number of FOBU 102 which arranges the account number of ISO/IEC7813 format can be decrypted. Thus, the RFID reader 104 may be filled with the identifier (for example, serial number) of a proper, and the RFID reader 104 may be used by the FOBU authentication circuit 210 in order to determine whether reception of the account number as which FOBU 102 was enciphered is approved.

[0073]

Drawing 1 B shows instantiation par SONARIZESHON system 100B according to this invention. Generally, typical

par SONARIZASHON system 100B may be the system of the arbitration for initializing the RFID reader 104 and FOBU 102, in order to use it by system 100A. Reference of drawing 1 B may show the same par SONARIZESHON process to FOBU 102. For example, the par SONARIZESHON system 116 is RF, in order to make easy authentication of RFID reader 104 identifier of a proper and to bring a security key together in the FOBU database 212. ISO It can communicate with FOBU 102 through 14443 interfaces 114. Furthermore, in case it determines whether FOBU 102 is approved by the access system 100, the par SONARIZESHON system 116 can collect FOBU 102 identifiers of a proper on a database 212 for use by the RFID reader 104. In order to provide with the par SONARIZESHON system 116 the RFID reader 104 which is henceforth and is attested, the FOBU 102 account numbers enciphered by the FOBU database 214 can be collected (for example, it pours in).

[0074]

With a 1 instantiation-operation gestalt, the par SONARIZESHON system 116 may contain the standard computing system of arbitration as mentioned above. For example, the par SONARIZESHON system 116 may contain the standard personal computer which contains the hardware security module which can operate using the conventional graphic user interface of arbitration. Before bringing together the account number of security key information, and the identification information of a proper in FOBU 102 or the RFID reader 104, it can verify that a hardware security module attests FOBU 102 and the RFID reader 104, and it is approved so that the information that a component is secure may be received.

[0075]

Drawing 6 A - drawing 6 B shows the instantiation-flow chart of the PASONARIZESHON procedure which may be used in order to carry out the PASONA rise of FOBU 102 and/or the RFID reader 104. Although the following explanation mainly explains PASONARIZESHON of FOBU 102, the PASONA rise of the RFID reader 104 may be carried out using the same process. The par SONARIZESHON process generated between the devices (for example, FOBU 102 or the RFID reader 104) by which a PASONA rise should be carried out to the par SONARIZESHON system 116 may be started in step 602. It may generate in the completely same mode as mutual recognition having been mentioned above about FOBU 102 which carries out mutual recognition to the RFID reader 104 between the par SONARIZESHON system 116 and the device attested. That is, the par SONARIZESHON system 116 can transmit the identifier of the par SONARIZESHON system 116 to the device which is compared by the par SONARIZESHON system identifier in which it was stored by device databases 212 and 310, and the device authentication circuits 210 and 308 and which is attested. When it does not have consistency (step 604), a par SONARIZESHON process may be abandoned (step 612). When it has consistency (step 604), a par SONARIZESHON system can prepare the par SONARIZESHON file with which the device by which a PASONA rise is carried out is provided (step 606). When a par SONARIZESHON system operates manually, a par SONARIZESHON file may be inputted into the par SONARIZESHON system 116 using the suitable system interface of arbitration, such as a keyboard, (step 606). When choosing so that the operator of the par SONARIZESHON system 116 may delay preparation of a par SONARIZESHON file, a system 116 can abandon a par SONARIZESHON process (step 610). In this point, a par SONARIZESHON file may contain the security key for decrypting the FOBU account number which may be loaded to the security key for loading to FOBU 102 of a proper or RFID reader 104 identifier, and databases 212 and 310, and/or a database 320.

[0076]

FOBU 102 is RF. ISO/IEC A PASONA rise may be carried out to the par SONARIZESHON system 116 by making direct connection through 14443 interfaces 114, and the PASONA rise of FOBU 102 may be carried out using the RFID reader 104. The par SONARIZASHON system 116 and the RFID reader 104 can cooperate in the case of mutual recognition, and the RFID reader 104 may be constituted so that a FOBUPASONARIZESHON file may be transmitted to FOBU 102 through RF. Once a PASONARIZESHON sake is shown FOBU 102 at the RFID reader 104 (steps 608 and 614), FOBU 102 and the RFID reader 104 can cooperate in the case of mutual recognition (step 614). When a PASONARIZESHON sake is not shown FOBU 102 at the RFID reader 104, a par SONARIZESHON process may be abandoned (step 610).

[0077]

When FOBU 102 is detected, the par SONARIZESHON system 116 can create the identifier of the proper for providing for FOBU 102 as a part of par SONARIZESHON file (step 616). In the point that one identifier may be given only to single FOBU, the identifier is peculiar. That is, neither of other FOBU cannot have the same identifier. Subsequently, FOBU may be constituted and loaded using the identifier (step 618).

[0078]

The account number of enciphered FOBU 102 may be brought together in FOBU 102 in the same mode as the

identifier of the proper of FOBU 102 having been explained. That is, the par SONARIZESHON system 116 can encipher accounting data beforehand (step 640), and the enciphered data account is poured into the FOBU database 214 (step 622). The enciphered accounting data may be loaded to FOBU 102 using the RFID reader 104, as mentioned above (for example, poured in).

[0079]

Once a par SONARIZESHON file is brought together in FOBU 102, in order to avoid access which the collected information is not changed and is not approved and which reads and/or is not approved, it is locked irreversibly (step 624). Subsequently, the par SONARIZESHON system 116 can create the log of the par SONARIZESHON file information for access after being based on par SONARIZESHON system 116 user, and analysis (step 626).

[0080]

or [in addition, / that a par SONARIZESHON process is arbitrated] -- or when blocked (step 628), the par SONARIZESHON system 116 can transmit security warning to a user (step 630), and a par SONARIZESHON process may be abandoned (step 612). On the other hand, when such mediation or active jamming does not exist, the par SONARIZESHON system 116 may be prepared so that initialization may be started on the 2nd device by which a PASONA rise is carried out (step 632).

[0081]

Drawing 7 A - drawing 7 B shows another instantiation-operation gestalt of the par SONARIZESHON process which may be used in order to carry out the PASONA rise of the RFID reader 104. The RFID reader 104 can communicate with the par SONARIZESHON system 116 through the RFID reader USB connection 316 (step 702). Once it connects, the par SONARIZESHON system 116 can establish the communication link with the RFID reader 104, and the RFID reader 104 can provide the par SONARIZESHON system 116 with the discernment data of the RFID reader 104 of the arbitration by which current storing was carried out on the RFID reader 104 (step 704). When the PASONA rise of the RFID reader 104 is carried out for the first time according to step 708 (step 706), the RFID reader 104 and the par SONARIZESHON system 116 can cooperate in mutual recognition, as mentioned above about drawing 6 A - drawing 6 B. After mutual recognition is completed, it can verify that the par SONARIZESHON system 116 is manufactured or constituted so that the RFID reader 104 may operate within a system 100 appropriately. Verification may include evaluating actuation of the RFID reader 104 by determining whether a RFID reader accepts predetermined default setting. That is, subsequently to the RFID reader 104, the par SONARIZESHON system 116 can offer the set of default setting (step 708), and determines whether the RFID reader 104 accepts these setup (step 712). When the RFID reader 104 does not accept default setting, the par SONARIZESHON system 116 can abandon a par SONARIZESHON process (step 714).

[0082]

When determining that the par SONARIZESHON system 116 is not the first par SONARIZESHON process that a par SONARIZESHON process is performed by the RFID reader 104 (step 706), the par SONARIZESHON system 116 and the RFID reader 104 can cooperate in a mutual recognition process using the existing security key already stored on the RFID reader 104 (step 710). When authentication is unsuccessful (step 712), the par SONARIZESHON system 116 can abandon a par SONARIZESHON process (step 714).

[0083]

When the result improves the par SONARIZESHON system 116 and the RFID reader 104 mutual recognition, the par SONARIZESHON system 116 can update the security key of the RFID reader 104 (step 716). Updating a security key may occur in the time amount of arbitration, as determined by the manager of a system 100. This updating may be generated only in order to generate as a part of everyday maintenance or to only install current security key data. This updating may be performed by downloading a firmware to the RFID reader 104 (step 718). When the par SONARIZESHON system 116 determines that the RFID reader 104 causes the first PASONARIZESHON in step 706, a firmware may be loaded to the RFID reader 104 for the first time. At this point, a "firmware" may include the file of the arbitration which enables the RFID reader 102 to operate under the guideline of a system 100. For example, such a guideline can be related with actuation of a RFID reader protocol / sequence controller 314.

[0084]

Subsequently, the par SONARIZESHON system 116 can determine whether whether PASONARIZESHONKI's (for example, a security key's, a decryption key's, a RFID identifier's) being updated and the RFID reader 104 need to have install of the PASONARIZESHONKI beginning (step 720). When there is such need, in a suitable case, the par SONARIZESHON system 116 can download PASONARIZESHONKI (step 722).

[0085]

Subsequently, the par SONARIZESHON system 116 can determine whether an identifier and a corresponding security

key should be updated, or FOBU 102 should be loaded first (step 724). When updating is not needed, the par SONARIZESHON system 116 can end a PASONARIZESHON procedure (step 732) (step 732). By contrast, when, as for the par SONARIZESHON system 116, the identifier and the corresponding key of FOBU 102 need to be updated or installed, the par SONARIZESHON system 116 can download information to the RFID reader 104 (step 726). It can download in the format as which information (for example, a FOBU security key and an identifier) was enciphered, and, in a suitable case, the RFID reader 104 can store information in the RFID reader database 310 (step 728).

Subsequently, the par SONARIZESHON system 116 can create or update the status log catalog for the use after being based on par SONARIZESHON system 116 user, and analysis (step 730). A par SONARIZESHON process can be completed according to renewal of a status log (step 732).

[0086]

In some examples, it being required in the same above modes to carry out the re-PASONA rise of the RFID reader, and obtaining should be taken notice of. In this example, the par SONARIZESHON process shown in drawing 7 A and drawing 7 B may be repeated.

[0087]

Drawing 8 shows the instantiation-flow chart to actuation of system 100A. Actuation may be understood referring to drawing 1 A, and this drawing shows the element of system 100A which may be used in instantiation-dealings. A process is started when it wants a customer to express FOBU 102 for payment (step 802). By presentation of FOBU 102, a customer starts RF payment procedure through the RFID reader 104 (step 804). Especially a RFID reader transmits outside the interrogation signal scanned for presentation of FOBU 102 (step 806). a RF signal -- the RFID reader antenna 106 -- or it may be optionally supplied through the external antenna 108. Subsequently, a customer can present FOBU 102 for payment (step 808), and FOBU 102 is started by supplied RF INTAROGESHON signal.

[0088]

Subsequently, FOBU 102 and the RFID reader 104 can cooperate in mutual recognition (step 810). When mutual recognition is unsuccessful, an error message may be supplied to a customer through RFID vision and/or an audible indicator (step 814), and dealings may be abandoned (step 816). When mutual recognition is successful (step 814), the RFID reader 104 can supply the suitable vision for a customer, and/or an audible message (for example, "dealings processing" or "standby") to a customer (step 818). Subsequently, a FOBU protocol / sequence controller 208 can take out the FOBU account number enciphered from the database 214, and provides the RFID reader 104 with the enciphered account number (step 820).

[0089]

Subsequently, the RFID reader 104 decrypts an account number, and changes an account number into a magnetic-stripe (ISO/IEC 7813) format (step 822), and the customer system 130 is provided with the account number which is not enciphered (step 828). POS110 may be provided especially with an account number for the transfer to the customer network 112 for processing. It argues about the instantiation-art by this invention about drawing 10 shown below - drawing 13. Subsequently to the RFID reader 104 at the time of processing, the POS device 110 can transmit (step 832), vision, and/or an audible dealings status message for the communication link to a customer (step 830).

[0090]

The approach for processing dealings may contain one of some formats needed by the FOBU publisher. For example, one art may be preloaded by the preloaded account or data file of a value before payment values (for example, a momentary value, a remuneration point value, a barter point value, etc.) enable use of FOBU including processing dealings under the preloaded FOBU format. Thus, a user may be enabled to store the payment frame of dealings for goods and service using FOBU. Between processings of dealings, acknowledgement of dealings may include comparing the amount of dealings with the amount of money (it remaining) stored in the data file of the preloaded value. A comparison is made by the preloaded value processing system, and is obtained, and the preloaded value processing system may compare the amount of dealings processed with the data file of the preloaded value. When the amount of dealings exceeds the frame stored in account of the preloaded value, the preloaded value processing system refuses the license to completion of dealings, requests that a user makes the value in a data file increase, and can request other means of the arbitration for satisfying payment of another gestalt of payment and/or the related financial institution which satisfy all or a part of amount of dealings. When not exceeding the frame stored in data file account of the value by which the amount of dealings was preloaded, the processing system of the preloaded value can offer license of dealings.

[0091]

The processing system 1000 of the preloaded instantiation value is shown to drawing 10 . The processing system 1000 of the preloaded value may contain FOBU 102 containing a transponder 114, and a transponder 114 communicates

with the customer system 130 through the RFID reader 104 or the computer interface 134, as explained with reference to drawing 1 A. A customer system can communicate with the publisher system 1010. The publisher system 1010 the entity (for example, non-finance or a financial institution (American Express (R) --)) of arbitration It may be maintained by Visa (R), MasterCard (R), etc. the entity of arbitration It makes it possible to store the frame of the value by which the user of FOBU 102 was preloaded in account (for example, data file) of the preloaded value which was maintained on the publisher database 1012 of the same configuration as a database 212. The publisher system 1000 may contain further one or more process servers for processing FOBU dealings. As shown, the POS device 110 (contained in the customer system 130) can communicate with the publisher account server (IAS) 1014, in order to receive FOBU account information from the POS device 110. IAS1014 can communicate with the license server (PLAS) 1016 of the value preloaded in order to process dealings containing FOBU of the preloaded value further. PLAS1016 may be in a communication link condition further with the publisher database 1012, in order to take the fund from the data file (not shown) of the preloaded value, to come out and to carry out. The data file of the preloaded value is used in order to satisfy preloaded FOBU or the customer dealings request. In this example, the data file of the preloaded value may be contained on a database 1012 as one or more subfiles.

[0092]

when used by this detail letter, the vocabulary "a publisher" or an "account provider" may contain the system which can point out the entity of the arbitration which makes easy payment of dealings which uses FOBU, and makes payment possible using at least one of preloaded FOBU which is not FOBU and preloaded. A typical publisher is American. They may be Express (R), MasterCard (R), Visa, Discover (R), etc. It may be stored in the data file of the value preloaded in order to use it, in case the dealings as which exchangeable values (for example, money, the remuneration point, the barter point, etc.) were requested in respect of processing of the preloaded value are made to complete. With 1 operation gestalt, an exchange value is not stored on FOBU itself. Furthermore, DEBITTO [the data file of the preloaded value / the amount of dealings]. Thereby, account of the preloaded value may be amended. The system platform of the preloaded value may be used in order to complete "direct link dealings", so that it may fully be explained by the following. In this case, account of the preloaded value may function as placeholder and can store a zero value.

[0093]

The data file of the preloaded value may be the conventional data file configuration of the arbitration for storing values (for example, money, the remuneration point, the barter point, etc.). This value may be exchanged for goods or service. About this point, the data file of the preloaded value may have the configuration of arbitration, when determined or wanted by the publisher system 1010.

[0094]

In instantiation-actuation, the POS device 110 may be provided with FOBU identification information (for example, an account number or a FOBU marker) in the mode same with drawing 1 A having been explained. That is, the customer system 130 may be shown FOBU 102 through the RFID reader 104 or the computer interface 134, and it can offer FOBU identification information in a format of the arbitration which can be recognized by truck 1 or truck 2 format or the POS device 110, and/or the publisher system 1001. The POS device 110 contained in the customer system 130 provides the publisher system 1010 with the identification information of FOBU 102 with dealings identification information (for example, a frame, quality, customer discernment, etc.), in order to reception-gain the identification information of FOBU 102 and to approve it. The customer system 130 may contain further a customer system marker or an identifier to show a customer system identity. The customer system 130 is made the customer dealings request for providing for the publisher system 1010 combining the identification information, customer identification information, and/or dealings identification information of FOBU 102.

[0095]

IAS1014 can receive dealings and FOBU identification information (or customer dealings request), and recognizes appropriately what is requested to account of the preloaded value which was related with FOBU by which dealings were preloaded. That is, IAS1014 can recognize having shown FOBU 102 by which the user was preloaded for payment. Recognition of FOBU 102 as preloaded FOBU may mean that FOBU identification information contains the marker or identifier which shows that it is related with the data file of the value by which FOBU was preloaded. According to recognition of a marker, IAS1014 can transmit dealings and FOBU identification information to PLAS1016 for processing. or [that PLAS1016 is stored in the value preloaded with the amount of dealings in order to determine whether license should be permitted or refused] -- or an extant value may be compared. When exceeding the value stored in the data file of the value by which dealings account was preloaded, PLAS1016 In order to provide for the customer system 130, may transmit the refused dealings message to IAS1014, and PLAS The request to which a

user makes the value in a data file increase may be urged, and other means of the arbitration for satisfying current [of the payment and/or the related financial institution of another format for satisfying all or a part of amount of dealings] or the payment of the future may be requested. Or when it is under the value stored in the data file of the value by which the amount of dealings was preloaded, PLAS1016 can be deducted from the data file of the value preloaded in the required frame to satisfaction of dealings.

[0096]

As shown above, with the 1 instantiation-operation gestalt of this invention, PLAS1016 can provide IAS1014 with the message by which dealings were refused for the various reasons for financial security. For example, the frame stored in account of the preloaded value is the case that a twist is also smaller than the value needed in order to satisfy a customer or a FOBU dealings request. In this example, when the preloaded value becomes lower than the predetermined minimum level (for example, the minimum reduction level), the data file of the value by which the FOBU user was preloaded can be reloaded. You may generate manually, and reloading of account of the preloaded value may be automatically generated, when the value stored in the data file of the value preloaded a telephone or on-line for example, a FOBU user -- decreases on the level specified beforehand. When reloading is performed automatically, reloading may be generated under the regulation established by a FOBU publisher or owner. For example, when the stored value is under a predetermined frame, reloading may be generated in a predetermined time interval until the maximum number of reloading occurs in a predetermined time interval, or until the amount of the maximum reloading reaches in a predetermined period.

[0097]

In another instantiation-actuation, a processing system 1000 can operate off-line. For example, the customer system 130 may be off-line about the publisher system 1010. That is, dealings may be authorized in the customer system 130, before dealings identification information is transmitted to a publisher system. Instead, the customer system 130 can offer the qualification protocol for using it, in case a customer dealings request is evaluated. For example, when dealings become under a predetermined frame and are requested from a specific location etc. including a specific customer, goods, or service, a qualification protocol can offer dealings qualification. Once off-line dealings are completed, a customer can ask for satisfaction of dealings separately in future periods under presentation processing of the arbitration determined by the batch or the customer by submitting dealings to a publisher.

[0098]

FOBU 102 may contain the counter (not shown) which can carry out the tracking of the number of off-line dealings to off-line dealings. Once dealings of predetermined numbers are tried, a counter may be used in order to make it easy to make use of FOBU 102 impossible. In one of the points, by requiring that an online trade should be performed, a counter is reset and FOBU 102 user enables off-line use of FOBU again. Needing online use after off-line use of a predetermined number may function as the further security approach so that I may be understood.

[0099]

Drawing 11 A and drawing 11 B show instantiation-PURIODINGU and the RIRODINGU process which may be performed according to this invention. PURIODINGU and a RIRODINGU process may be performed using one or more servers (for example, PLAS1016) which communicate with a source of funds 1104. Although a process is shown using PLAS1016, the server of the arbitration constituted so that a data file might be established and managed is used, and thing consideration is obtained and carried out. However, in order to make the further understanding of this invention easy, the aspect of affairs which this invention PURIODINGU and reloads is explained about PLAS1016.

[0100]

PLAS1016 may be used in order to establish account (for example, data file) of the value preloaded on the server or the database (for example, database 1012) (1106). or [that fund offer of the account of the preloaded value is made by a FOBU publisher / account provider] -- or a credit, a tariff, DEBITTO, remuneration value account, loyalty account, etc. can be established by being maintained with a tariff or credit cards (for example, Visa, MasterCard, American Express, Discover, etc.), DEBITTO, or a direct DEBITTO license (DDA) system.

[0101]

Account of the preloaded value may be established to the amount of the predetermined minimum [at least] preloading determined by an account provider and/or a FOBU user, or owner, or a value (for example, the minimum preloading level). At this point, the predetermined minimum value (for example, the minimum preloading value) needed in order to establish account of the preloaded value may be changed to a specific FOBU user. Account of the preloaded value may be loaded from the fund received from one of sources of funds 1104 (American Express, Visa, MasterCard, Discover, fuel card) (for example, preloading or reloading). Furthermore, account of the preloaded value may be loaded using the value received from the loyalty or the remuneration point provider. in order to make an understanding of this

invention easy, a loyalty or a remuneration point provider may be referred to as a source of funds by this detail letter. Therefore, PLAS1016 can communicate with a source of funds 1104, in order to acquire the fund or value for loading or reloading account of the preloaded value (1108).

[0102]

Drawing 11 B shows the instantiation reloading process by this invention. Working and a customer can present prepaid FOBUs 102 in order to purchase goods or service (1110) to the customer system 130. Subsequently, account of the preloaded value decreases the frame of the value paid for the customer system 130. The process for purchasing goods may be repeated until the value stored in account of the preloaded value becomes below income and outgo (for example, the minimum reduction level) of the minimum level. The minimum reduction level may be the minimum value which makes it possible to be stored in account of the preloaded value, before being determined by a FOBUs user or the FOBUs publisher and reloading a file.

[0103]

Once the data of the preloaded value are exhausted, the level [exhausting / minimum] is reached, PLAS1016 carries out the trigger of the automatic reloading, and account of the value preloaded from the fund taken out from the source of funds 1104 can be reloaded (1112). Since account of the value preloaded by the critical mass mentioned above or the predetermined reloading value of some others is loaded, the taken-out amount of funds is enough and is obtained. In one instantiation operation gestalt, PLAS1016 can carry out the trigger of automatic RIRODINGU attained by the predetermined level [exhausting / minimum] (for example, the "minimum level income and outgo"). That is, on the whole, account of the preloaded value must have been exhausted to a zero value, before automatic RIRODINGU arises. In this instantiation, PLAS1016 can charge a fund required for automatic RIRODINGU to an available fund in a source of funds 1104. In the operation gestalt of another instantiation, when exceeding the amount stored in account of the value by which dealings were preloaded, or the amount which remains, automatic RIRODINGU may arise. Thus, account of the preloaded value may be secured to completion of dealings at a complement. for example, when it stores account of the value with which automatic RIRODINGU was preloaded by the suitable value for the completion of dealings, account of the preloaded value processes dealings -- it is still alike and may be reloaded automatically.

[0104]

In the operation gestalt of another instantiation, automatic RIRODINGU may be produced based on the automatic reloading criteria of a different user or an issuer. Although other automatic reloading criteria are not limited, in RIRODINGU until the predetermined amount of the maximum loads in a predetermined period is attained RIRODINGU until RIRODINGU in the selected recurrence student time interval (it is 1 time per month), RIRODINGU to which a permission is granted until the predetermined number of the maximum reloading is attained in a specific period, or the predetermined amount of the maximum reloading is attained in a specific period is wrapped. In a certain case, in case RIRODINGU [a FOBUs user takes contact with an issuer through a telephone or a user interface and / account of the pre reloaded value] for example, when you offer specific fund decision and a source of funds, RIRODINGU does manually.

[0105]

In the operation gestalt of still more nearly another instantiation, the transaction processing system of a value pre reloaded can permit acknowledgement of dealings, when exceeding the amount of the preloaded value which is stored in account of the value by which the value of dealings was preloaded. That is, preloaded FOBUs may be used for purchase to which it exceeds the amount of the preloaded value which is offered that the tariff presented by the customer is below the amount of the maximum reloading that permitted to add to the amount stored in the card when a tariff was shown.

[0106]

In the operation gestalt of another instantiation, the system of the preloaded value can recognize dealings based on a specific customer's dealings processing protocol. When an issuer re-evaluates a customer's dealings art and/or it attests, a system can take the approach of taking into consideration the judgment of whether recognizing a dealings demand of a customer. For example, although a customer's dealings art may contain the customer who presents the dealings demand exceeding the amount of the preloaded value, an actual tariff may be below the amount of the preloaded value. Based on this dealings art, customers, such as a customer of a gasoline, can search for independent acknowledgement of the amount of funds of the gasoline which foresaw the point. When determining whether purchase the item which a consumer fills the gas tank of an automobile or does not need a fuel especially, a consumer or a customer cannot know the final exact value of purchase, either. Therefore, a customer can present the dealings demand which can become higher than the final amount of dealings. A customer can present a dealings demand in real time or the back with the same aspect mentioned above about off-line dealings demand processing. In either on-line processing or off-line

processing, the transaction processing system of the preloaded value may be further constituted so that a dealings demand may be recognized. Since an acknowledgement protocol may include the information that a customer transmits the dealings demand exceeding an actual tariff, it can recognize a processing system coming from the customer of specification [dealings], and forming the predetermined acknowledgement protocol which has a correlation to the customer.

[0107]

Any one of the techniques in which the admission for [, such as a marker added to for example, the customer's ID cognition or dealings,] recognizing a customer is possible can be used for a transaction processing system. A processing system makes Customer ID correlate with a customer protocol, in order to require dealings acknowledgement of a larger amount than the preloaded value (or reloaded value), consequently it can recognize a customer demand.

[0108]

If a dealings demand is received from IAS1014 according to the operation gestalt of instantiation of an alternative of the processing system 1000 of the preloaded value, PLAS1016 can evaluate a dealings demand based on some risk criteria defined by the issuer to either an online trade or off-line dealings. When all the criteria are met well next, PLAS1016 can transmit license (for example, "permitted dealings") of dealings to IAS1014, in order to provide for a trading system 130. It can ask for sufficiency of dealings from providing IAS1014 with dealings license, coincidence, or the FOBU value account by which PLAS1016 is maintained after that on the account provider database 1012. IAS1014 may be provided with a dealings demand in order to process. That is, IAS1014 can ask for deduction of a dealings value from the income and outgo of the amount stored in account of the preloaded value.

[0109]

Drawing 12 shows the operation gestalt of instantiation of another transaction processing system ("direct link" system) 1200 according to this invention. In a detail, drawing 12 indicates more the direct link system 1200 which may be used in order to process a dealings demand of a customer. It may be the system of the arbitration which urges sufficiency of a dealings demand to the account in which a direct link system stores exchange values (for example, money, a credit, a tariff, or the prize point etc.) in relation to this using FOBU linked directly or the media (a credit card, a tariff card, debit card, etc.) in which other presentation is possible. In this case, account of the preloaded value must have been preloaded so that it may be mentioned above. Account of the value furthermore preloaded may be presented to payment of goods or service, for example, may be linked to contact financial products, such as a credit, DEBITTO, and/or a DDA card. About this point, FOBU (called "direct link FOBU" among this specification) and a card are related with the same source of funds, and a user or a customer can ask [whether direct link FOBU or a card is used and] for sufficiency of dealings from a source of funds not related. In the instantiation direct link system 1200, direct link FOBU 102 user cannot specify account of the value preloaded using the value. It may be related with the FOBU dealings account which may be used in order that account of the preloaded value can store a zero value permanently instead when account is a credit, DEBITTO, or royalty account and obtains, or FOBU 102 may provide goods and the customer of service with payment.

[0110]

According to the operation gestalt of instantiation of this invention, the dealings demand relevant to direct link FOBU 102 may be processed using trading system processing of a value in which the **** was preloaded. However, account of the preloaded value is used as placeholder stored in a zero value in this case so that it may be indicated. The dealings account including the dealings account value related with direct link FOBU is treated as a source of funds, in order to satisfy direct link dealings. In this case, dealings may be satisfied according to the user or issuer of FOBU by whom a protocol or criteria is specified beforehand.

[0111]

A customer's system 130 can be in the issuer system 1010 and communication link condition for receiving a dealings demand of a customer so that it may be illustrated. The POS device 110 can be in an issuer's server and communication link condition of the issuer account server (IAS) 1014 for receiving a customer and/or dealings identification information in a detail more. IAS1014 can be in a communication link condition to PLAS1016 further, in order to process a dealings demand of a customer. In a certain case, when one or more existing servers can perform the function of IAS1202 indicated below, although 2nd IAS1202 must have been required, PLAS1016 can be in a communication link condition further with 2nd IAS1202. However, IAS1202 is contained in this specification, in order to make easy an understanding of actuation of the operation gestalt of this instantiation.

[0112]

In actuation of instantiation of a system 1200, direct link FOBU (for example, a FOBU identifier or an account

number) which identifies information may be prepared in the POS device 110 with the aspect same with being indicated in relation to drawing 1 A. That is, direct link FOBU 102 may be presented to the customer system 130 through the RFID reader which can form direct link FOBU 102 which identifies information, or the computer interface 134 in Track1 or Track2 format. The POS device 110 contained in the customer system 130 receives direct link FOBU 102 which identifies information, and can provide the issuer system 1010 with direct link FOBU 102 identification information with dealings identification information (for example, an amount, quantity, a customer identification number, etc.) for license.

[0113]

IAS1014 recognizes that receive dealings and FOBU identification information and the dealings demanded relate to direct link FOBU 102. In this case, recognition of direct link FOBU 102 which can be set may mean that direct link FOBU 102 identification information contains the marker or identifier FOBU indicates it to be connected with account of the value by which the zero value was preloaded. By cognition of a marker, IAS1014 can transmit dealings and FOBU identification information to PLAS1016 for processing.

[0114]

PLAS1016 can evaluate a dealings demand by aspect same with being indicated in relation to actuation of the processing system of the value by which drawing 10 was preloaded based on some risk criteria specified by the issuer. Although the risk criteria of instantiation are not limited, they may include the amount limit of dealings of a specific period, the use hysteresis of the user of FOBU, a fund or a savings limit, a predetermined refunding convention, a limit of custom, or consideration of the same valuation basis of arbitration. When all the criteria are met well, PLAS1016 can transmit license (for example, authorization of dealings) of dealings to IAS1014, in order to provide for the customer system 130. Based on evaluation of risk criteria, the customer system 130 which is not based on the value included in the account of the value preloaded [which were preloaded and was direct-link-dealings-accounted] which stores the value relevant to direct link FOBU may be provided with license of dealings.

[0115]

After providing IAS1014 with license of dealings, PLAS1016 can ask for license of dealings from the direct link FOBU account (for example, dealings account) stored with the value which it was held at an issuer's database 1012, and was received from the source of funds 1104. IAS1202 may be provided with a license demand for the acknowledgement which can take out the required value from direct link FOBU account. For example, when direct link FOBU account is a tariff or credit account, PLAS1016 can require license from 2nd IAS1202, and IAS1202 can estimate the amount of dealings to the direct link FOBU account on a database 1012. IAS1202 can search for record of the amount of the dealings in the use hysteresis data file of direct link FOBU for payment in the last of a billing cycle (for example, tariff account), or an amount may be recorded on the use data file of FOBU direct link FOBU for payment after the last of a billing cycle (for example, credit account).

[0116]

In substitute actuation, PLAS1016 can estimate the amount of dealings to direct link FOBU account, without using 2nd IAS1202. In order that a value may satisfy dealings as like as dealings are processed using 2nd IAS1202, it should be understood that it must have been immediately transmitted to a trading system from direct link FOBU account. Instead, as for the issuer of direct link FOBU, a reference value can guarantee the last of a billing cycle, or sufficiency of dealings of a customer by demand until it is taken out from direct link FOBU account after that. That is, although PLAS1016 cannot take out a value required by the time a customer finishes providing an issuer system with the demand of settlement of accounts, in order to satisfy dealings, it can offer license of dealings.

[0117]

In the transaction processing system 1300 of another instantiation to the pan shown in drawing 13, the customer system 130 can offer the batch file which includes two or more FOBU dealings so that it may be processed by the process server 1302, when it includes both the value by which two or more FOBU dealings were preloaded, and a direct link dealings demand. A system 1300 may contain the processing server 1302 which distinguishes the preloaded value and a direct link dealings demand. That is, the processing server 1302 may be used in order to divide the FOBU dealings relevant to the preloaded FOBU account, and the FOBU dealings irrelevant to the preloaded FOBU account so that it may be indicated below more completely. The processing server 1302 can be in a communication link condition further with IAS1014, in order to ask for settlement of dealings. IAS1014 can process a dealings demand according to the preloaded dealings platform of a value or direct link dealings processing which is mentioned above.

[0118]

In instantiation-actuation of a system 1300, the processing server 1302 receives a settlement-of-accounts file, and can identify a file according to the class of dealings demand. For example, the processing server 1302 installs the marker on

the received file, and can generate the subfile of the dealings demand relevant to the class (for example, preloaded FOBUs and a tariff; or direct link FOBUs relevant to credit account) of FOBUs used for dealings. A process server can generate the subfile relevant to a file marker. The processing server 1302 can generate the 1st FOBU transaction file of a customer's debt, and the 2nd FOBU transaction file of the receivable account transmitted to IAS1014 in order to process. When a subfile includes a customer's debt, the processing server 1302 can provide a customer with funds for payment of dealings. Here, the fund offered is equivalent to having lengthened the discount profit, and is obtained from the amount of dealings. Funds may be taken out from the source of funds for providing for a customer. Or the processing server 1302 generates the 2nd FOBU transaction file for the payment which can receive account, and can transmit the 2nd FOBU transaction file to IAS1014. Next, IAS1014 can process a dealings demand by processing indicated by drawing 10 and 12. That is, IAS1014 distinguishes the preloaded FOBUs dealings demand and the demand relevant to direct link FOBUs, consequently can process dealings.

[0119]

Consideration of actuation of the various transaction processing systems mentioned above may understand that it can distinguish when FOBUs by which the transaction processing system indicated was preloaded when is used, and the card relevant to FOBUs is used, or when the account relevant to preloaded FOBUs is reloaded. About that, this invention may be used to the remuneration point depending on the description of FOBUs use. The point (for example, royalty point) may be stored in the point account or remuneration account held at an issuer's database (for example, database 1012). Next, the remuneration point may be realized from the remuneration account for exchange with goods and service behind so that it may be wanted by the user of FOBUs. It is related with the further information on a royalty system and a trading system. For example, System for which Artificers Voltmer applied on April 17, 2001 And Method For Networked Loyalty The United States patent application 09th of a name called Program / No. 836,213, System for which Artificers Ariff applied on December 20, 2001 And Method For Networked Loyalty The U.S. part continuation application 10th of a name called Program / No. 027 or 984, System for which Artificers Haines applied on November 6, 2001 And Method For Networked Loyalty The U.S. part continuation application 10th of a name called Program / No. 010 or 947, Shop indicated by the 60th for which it applied on September 5, 2000 / No. 230,190 AMEXTM system, The 60th for which it applied on April 14, 2000 / No. 197,296, the 60th / No. 200,492 for which it applied on April 28, 2000, MR indicated by the 60th for which it applied on May 2, 2000 / No. 201,114 as CurrencyTM and Loyalty Rewards Systems, The card of the stored value which is indicated by the 09th for which it applied on February 1, 1999 / No. 241,188, The system for conducting easy the dealings using the number of secondary dealings indicated by the 09th for which it applied on March 7, 2001 / No. 800,461, And related temporary application 60th / No. 187,620 for which it applied on March 7, 2000, With reference to the 60th for which it applied on April 28, 2000 / No. 200,625, and the 60th for which it applied on May 22, 2000 / No. 213,323, these [all] are used as reference into this specification. Other examples of an online member's remuneration system are indicated by that of U.S. Pat. No. 5,774,870 of Netcentives exhibited on June 30, 1998, and U.S. Pat. No. 6,009,412 published on December 29, 1999, and are used as reference into [both] this specification.

[0120]

The point may be offered not only when the card related with FOBUs is used in one example so that reference may be made, but when FOBUs is used. For example, IAS1014 can recognize giving the point (for example, royalty point) to the remuneration account which was assigned to the user of that FOBUs is used and FOBUs or was related with FOBUs. Based on the criteria of arbitration, the royalty point may be given so that it may be determined by the FOBUs issuer. The remuneration criteria of instantiation may include the remuneration point of such criteria of the arbitration for inducing the operating frequency of FOBUs, each amount of purchase which uses FOBUs, the total amount of purchase in a predetermined period, a customer's location, a customer's type, or use of FOBUs.

[0121]

When FOBUs is related with account of the preloaded value which is indicated about drawing 10, the point may be given to AKAUNTORI loading. That is, IAS1014 can distinguish the privilege point of the remuneration account about the amount which is loaded according to a demand or is reloaded (place). Furthermore, IAS1014 can distinguish the privilege point in the remuneration account about use of FOBUs to use or specific dealings of FOBUs in a specific customer.

[0122]

The dealings account related with FOBUs 102 may include a use limit of every purchase expenditure limit, the use for every time amount, the use for every week, use of a specific customer, etc. The further verification is required when using FOBUs out of a limit here. A limit may be assigned to FOBUs 102 user or an account provider according to an individual. For example, in one instantiation operation gestalt, account needs to be enacted and purchase exceeding \$X

(namely, expenditure limit) needs to be verified by the consumer. Such verification may be offered using the dealings account number of the suitable personal identification number (PIN) which may be recognized by payment license pin center,large (not shown) which is peculiar to FOBU 102 or FOBU 102 holder (for example, customer), and FOBU 102 with correlation. When demanded purchase exceeds the expenditure limit enacted for every purchase, a consumer is required as offering PIN, a biotechnology metric sample, and/or the same secondary verification, and can complete dealings. That is, for example, FOBU 102 can input PIN original with the conventional keypad in the customer system 130 or the RFID reader 104. A license pin center,large may be provided with PIN for the comparison with PIN with the relation stored in an issuer system. Or FOBU 102 may be provided with PIN through the RFID reader 104. FOBU 102 can verify PIN by comparing this PIN with PIN with the relation stored in the secure memory 212.

[0123]

When Verification PIN is used as secondary verification, Verification PIN expects accuracy to positive PIN which has relation in the dealings account number of FOBU 102, and may be checked. Positive PIN may be stored in the database (1012) which may be stored in localization, or (for example, on FOBU 102) is in a payment license pin center,large. The database of a payment license pin center,large is held by the dealings account provider of FOBU 102, and may be the database 1012 of the arbitration which operates.

[0124]

The POS device 110 may be provided with Verification PIN using the conventional customer (for example, POS) PIN keypad 118 which is in the POS device 110 and a communication link condition as shown in drawing 1, or the RFID keypad which is in the RFID reader 104 and a communication link condition. An PIN keypad may be in the POS device 110 (or RFID reader 104) and a communication link condition using the conventional data link of the arbitration mentioned above. If Verification PIN is received, the RFID reader 104 can ask for coincidence with positive PIN and positive PIN which are stored in the RFID reader 104 in databases 310 or 320. Or it can distinguish whether a payment license pin center,large is provided with Verification PIN, and its PIN corresponds with PIN stored in the payment license pin center,large database which has relation in account of FOBU 102. When in agreement, purchase must have been restricted any longer and completion of dealings may be permitted.

[0125]

In a substitute operation gestalt, verification of purchase which exceeds the enacted expenditure limit may contain the biotechnology metric circuit section contained in FOBU 102. Drawing 9 is the schematic diagram of FOBU 102 of instantiation, and FOBU 102 contains the biotechnology metric security system 902. The biotechnology metric security system 902 may contain the biotechnology metric sensor 904 for detecting the fingerprint of the user of FOBU 102. The biotechnology metric sensor 902 can be in a sensor interface / driver 906, and a communication link condition in order to receive the fingerprint of a sensor, and in order to start actuation of FOBU 102. The biotechnology metric sensor 904 and the sensor interface 906 can be in the dc-battery 903 and the communication link condition of offering power required for actuation of a biotechnology metric security system component.

[0126]

In one instantiation example of application of FOBU 102 containing the biotechnology metric security system 902, a customer places a customer's finger on a biotechnology metric sensor, and can start the mutual recognition process between FOBU 102 and the RFID reader 104, or can offer secondary verification of discernment of a user. The fingerprint of a sensor may be compared with the digitized fingerprint which is stored in the database (for example, safe database 212) which it is digitized and is contained in FOBU 102.

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CLAIMS

[Claim(s)]

[Claim 1]

It is a transponder-reader payment system,

- a. This transponder system identifier is a transponder system including the marker which it is the transponder system which answers a radio frequency in taro gate signal, and, as for this transponder database, this transponder system stores at least one transponder system identifier including a transponder database, and identifies that a transponder system is one of a prepaid transponder and direct link transponders,
- b. It is the radio frequency discernment (RFID) reader which is a radio frequency discernment (RFID) reader which carries out this transponder system and a radio frequency (RF) communication link, and this RFID reader provides this transponder system with this in taro gate signal, and receives this transponder system identifier,
- c. Are the customer system related with the customer identifier, and this customer system includes the point of an interaction device. The point of this interaction device communicates with this RFID reader. This RFID reader provides the point of this interaction device with this transponder system identifier. The point of this interaction device It is the customer system by which this customer identifier and a transponder system identifier are related with a user dealings request, a customer dealings request is formed, and the point of this interaction device provides a publisher system server with this customer dealings request,
- d. It is a publisher system,

i. -- the publisher system server which communicates with the point of this interaction device -- and A publisher system database including the preloaded value which is related with the ii. this transponder system identifier

***** and a publisher system

***** a transponder-reader payment system.

[Claim 2]

A predetermined value is preloaded by said preloaded value data file before transponder system usage, and this predetermined value is a larger transponder-reader payment system according to claim 1 than zero.

[Claim 3]

Said publisher system server is a transponder-reader payment system according to claim 2 which identifies that said transponder system is a prepaid transponder system.

[Claim 4]

Said publisher system server is a transponder-reader payment system [said predetermined value / value / said / user dealings] according to claim 3.

[Claim 5]

Said user dealings request is a transponder-reader payment system according to claim 4 which is [whether it is said under predetermined value or] equal to said predetermined value.

[Claim 6]

Said publisher system is a transponder-reader payment system according to claim 5 which provides said customer system with dealings acknowledgement transmission.

[Claim 7]

said publisher system server -- said a part of predetermined value [at least] -- from said preloaded value data file -- taking out -- this predetermined value -- this -- a value predetermined [this] from a value predetermined [at least / this] in the value data which provided said customer system with the part and were this preloaded -- this -- the transponder-reader payment system according to claim 6 which will store the deduction which subtracted the part.

[Claim 8]

It is the transponder-reader payment system according to claim 7 which said publisher server answers said preloaded value at it at said predetermined value when said deduction is under the minimum reduction level, and reloads.

[Claim 9]

It is the transponder-reader payment system according to claim 8 by which said publisher system server communicates with the source of supply of investable funds, this source of supply of investable funds is related with said transponder system identifier and said preloaded value, and this source of supply of investable funds includes the source value of supply of investable funds.

[Claim 10]

Said publisher server is a transponder-reader payment system according to claim 9 which takes out said a part of source value of supply of investable funds in order to use in reloading of said preloaded value data file.

[Claim 11]

It is the transponder-reader payment system according to claim 4 which said publisher system server answers said comparison when said user dealings request exceeds said predetermined value, and provides said customer system with dealings refusal transmission.

[Claim 12]

It is a transponder-reader payment system [request / said / user dealings / a predetermined acknowledgement protocol / be / when the point of said interaction device is off-line / the point of this interaction device / any of whether said user dealings request is recognized or to refuse] according to claim 2.

[Claim 13]

Said publisher system server is a transponder-reader payment system according to claim 1 which identifies that said transponder system is a direct link transponder system.

[Claim 14]

Said predetermined value is a transponder-reader payment system according to claim 13 which is a zero value.

[Claim 15]

Said publisher system server is a transponder-reader payment system according to claim 14 by which said customer dealings request is evaluated about acknowledgement in accordance with at least one predetermined criteria.

[Claim 16]

It is the transponder-reader payment system according to claim 15 by which said publisher system server offers dealings refusal transmission according to at least one of said predetermined criteria, and said customer system is provided with this dealings refusal transmission.

[Claim 17]

It is the transponder-reader payment system according to claim 15 by which said publisher system server offers dealings acknowledgement transmission according to at least one of said predetermined criteria, and said customer system is provided with this dealings acknowledgement transmission.

[Claim 18]

It is the transponder-reader payment system according to claim 17 by which this source of supply of investable funds is related with said transponder system identifier, including further the source of supply of investable funds which communicates with said publisher system server, and this source of supply of investable funds includes the source value of supply of investable funds.

[Claim 19]

It is the transponder-reader payment system according to claim 18 by which said publisher system server answers said user dealings request, and gives a credit to said source of supply of investable funds, and said a part of user dealings request [at least] is added to said source value of supply of investable funds.

[Claim 20]

said publisher system server -- said user dealings request -- following -- said source of supply of investable funds -- charging -- this publisher system server -- said a part of source value [at least] of supply of investable funds -- it -- answering -- receiving -- this source value of supply of investable funds -- this -- the transponder-reader payment system according to claim 18 by which a part is behind received rather than this publisher system server offers said dealings acknowledgement transmission in time.

[Claim 21]

For this form element for communication, this form element for communication is a transponder-reader payment system according to claim 13 related with said transponder system and said preloaded value including the form element marker for communication, including further the form element for communication which can be shown about the

satisfaction level of said customer dealings request.

[Claim 22]

Said form element for communication is a transponder-reader payment system according to claim 21 which is one of a charge card, a credit card, a debit card, a loyalty card, and direct DEBITTO license cards.

[Claim 23]

It is the transponder-reader payment system according to claim 21 by which this customer system is related with the communication user dealings request which forms a customer communication dealings request for this form element marker for communication, and this customer system provides said publisher system server with this customer communication dealings request when said customer system is shown said form element marker for communication.

[Claim 24]

Said publisher system server is a transponder-reader payment system according to claim 23 which receives said customer communication send request, answers it and provides said customer system with at least one of the 2nd dealings acknowledgement transmission and the 2nd dealings refusal transmission.

[Claim 25]

the dealings by which said publisher system server answered transmission of said dealings acknowledgement transmission and said 2nd dealings acknowledgement transmission including the dealings acknowledgement data file, and said publisher system database was recognized further -- generating -- this dealings acknowledgement data file -- this dealings acknowledgement transmission -- this -- the transponder-reader payment system according to claim 24 separated from the 2nd dealings acknowledgement transmission.

[Claim 26]

It is the transponder-reader payment system according to claim 25 by which this acquisition point data file is related with said transponder system identifier and said form element marker for communication for said publisher system database, including an acquisition point data file further, and this acquisition point data file contains a loyalty value index.

[Claim 27]

Said publisher system server is a transponder-reader payment system according to claim 26 to which answer at least one of said dealings acknowledgement transmission, said 2nd dealings acknowledgement transmission, said customer identifier, said customer dealings request, and said customer communication dealings requests, and said loyalty value index is made to increase by the loyalty value.

[Claim 28]

Said publisher system server is a transponder-reader payment system according to claim 26 to which said loyalty value index is made to increase by the loyalty value in accordance with publisher predetermined incentive criteria.

[Claim 29]

- a. It is the transponder-reader payment system which contains further the user system which communicates with said publisher system server and is in remoteness from said publisher system,
- b. Said transponder system includes further the Universal-Serial-Bus interface which communicates with this user system,
- c. Said publisher system database contains further the user profile data file containing at least one of a user DEMOGURAFIKKU subfile and transponder system-usage subfiles. This DEMOGURAFIKKU subfile and this transponder system-usage subfile are manageable with this publisher system server. This DEMOGURAFIKKU subfile stores two or more user DEMOGURAFIKKU identifiers. This transponder system-usage subfile is a transponder-reader payment system according to claim 1 which stores at least one limit imposed on transponder system usage.

[Claim 30]

Said user system provides said publisher system server with at least one of an updating DEMOGURAFIKKU identifier and updating limits. This updating DEMOGURAFIKKU identifier corresponds to at least one of said two or more user DEMOGURAFIKKU identifiers. Even if it corresponds to said at least one limit and said publisher system server does not have at least one and this ** of these two or more user DEMOGURAFIKKU identifiers, this updating limit one limit The transponder-reader payment system according to claim 29 exchanged for a this corresponding updating DEMOGURAFIKKU identifier and a this corresponding updating limit.

[Claim 31]

At least one and the exchange of at least one limit of said two or more user DEMOGURAFIKKU identifiers are a transponder-reader payment system according to claim 30 performed on real time.

[Claim 32]

It is the radio frequency discernment transponder-reader payment approach,

- a. This customer system is a process containing a customer system identifier including one of the transponder system marker which is the process which provides a customer system with a transponder system identifier by the radio frequency signal and by which this transponder system identifier was preloaded, and direct link transponder markers,
- b. It is the process in which it is the process which relates this transponder system identifier with a user dealings request, this customer system forms a customer dealings request in, and this user dealings request includes a dealings value,
- c. The process which provides a publisher system server with this customer dealings request,
- d. The process which distinguishes the preloaded this transponder system marker and this direct link transponder marker,
- e. The value data file which related at least one of the preloaded this transponder system marker and these direct link transponder markers with the preloaded corresponding value, and was preloaded is a process including the preloaded value.

How to include.

[Claim 33]

It is the approach of including further the process which preloads the preloaded larger value than a zero value in said preloaded value data file,

- a. The process in comparison with the value this preloaded in said user dealings value,
- b. The process which said dealings value is said under preloaded value, or provides said customer system with dealings acknowledgement transmission when equal,
- c. The process which draws this dealings value from the preloaded this value,
- d. The process which provides this customer system with this dealings value,
- e. The process which reloads the this preloaded value data file when reaching the predetermined minimum reduction level

The approach according to claim 32 of including.

[Claim 34]

- a. The process which preloads the value preloaded by said preloaded value data file,
- b. The process in comparison with the value this preloaded in said user dealings value,
- c. The process which provides this customer system with dealings refusal transmission when this dealings value is larger than a predetermined value

The approach according to claim 32 of including in a pan.

[Claim 35]

- a. The process which relates the form element identifier for communication with said transponder system identifier,
- b. The process which provides a customer system with this form element identifier for communication,
- c. It is the process in which it is the process which relates this form element identifier for communication with the 2nd user dealings request which forms the 2nd customer dealings request, and this user dealings request includes the 2nd dealings value.
- d. this -- the process which provides a publisher system server with the 2nd customer dealings request,
- e. this -- a process [said preloaded value / request / 2nd / user dealings]

The approach according to claim 33 of including in a pan.

[Claim 36]

The approach according to claim 35 of said 2nd user dealings request being said under preloaded value, or including further the process which provides said customer system with the 2nd dealings acknowledgement transmission, when equal.

[Claim 37]

The approach according to claim 35 of including further the process which provides said customer system with dealings refusal transmission, when said 2nd user dealings request is larger than said preloaded value.

[Claim 38]

the approach of including further the process which generates a transponder system-usage data file including record of said dealings acknowledgement transmission and said 2nd dealings acknowledgement transmission -- it is -- this dealings acknowledgement transmission -- this -- the approach according to claim 36 separated from the 2nd dealings acknowledgement transmission.

[Claim 39]

- a. The process which offers an acquisition point data file,
- b. The process to which answer said dealings acknowledgement transmission and this acquisition point data file is

made to increase by the acquisition value

The approach according to claim 38 of including in a pan.

[Claim 40]

a. The process which offers an acquisition point data file,

b. The process to which answer said 2nd dealings acknowledgement transmission and this acquisition point data file is made to increase by the acquisition value

The approach according to claim 38 of including in a pan.

[Claim 41]

The approach according to claim 38 of including further the process which offers said acquisition point data file, and the process to which answer at least one of said dealings acknowledgement transmission and said 2nd dealings acknowledgement transmission, and said acquisition point data file is made to increase by the acquisition value.

[Claim 42]

The approach according to claim 41 of answering at least one of said dealings acknowledgement transmission and said 2nd dealings acknowledgement transmission, and including further the process which reloads said preloaded value data file.

[Claim 43]

The approach according to claim 42 of answering at least one of reloading of said preloaded value data file, said customer dealings request, said user dealings request, said transponder system identifier, and customer system identifiers, and including further the process to which said acquisition point data file is made to increase.

[Claim 44]

a. Access to the publisher system using the transponder system discernment using the user point of a transponder system identifier and an interaction device,

b. It is updating with which it is renewal of the data file containing one of a user DEMOGURAFIKKU index and transponder system-usage limits, and this data file is related with this transponder system identifier.

***** a radio frequency discernment transponder system.

[Claim 45]

The approach according to claim 44 of including further updating on the real time of said data file.

[Claim 46]

A RFID reader is a transponder-reader payment system according to claim 1 which provides the point of said interaction device with said transponder system identifier in Track1/Track2 format.

[Claim 47]

The process which provides a customer system with said transponder system identifier by the radio frequency signal is the approach according to claim 32 of including the process which offers this transponder system identifier in Track1/Track2 format.

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TECHNICAL FIELD

[Field of the Invention]

[0001]

(Field of invention)

This invention relates to the system and approach for more specifically completing a financial transaction using radio frequency discernment (RFID) in contact and a non-contact environment of completing dealings.

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PRIOR ART**[Background of the Invention]**

[0002]

(Background of invention)

RFID(s), such as a bar code and a voice data entry, are non-contact information gathering techniques. A RFID system is wireless and usually effective especially in the poor environment where the conventional collecting method does not function. RFID is fixed to extensive commercial scenes, such as a trace of migration objects, such as read-out of the high speed of for example, a railroad container, livestock, or an automobile, and an application of merchandise inventory control. Therefore, the RFID technique has taken automatic data acquisition, discernment, and the lead in an analysis system globally.

[0003]

Recently, a company is taking in RFID data-gathering technique with the gestalt of FOBU or a tag, in order to use, in case a financial transaction is completed. Typical FOBU is the device which may usually be contained in the portable form factor of arbitration, including a transponder and which contained all required functions. In some examples, in order to carry out an electric power supply to a transponder, a dc-battery may be contained with FOBU. Or FOBU may exist, without being dependent on an internal electrical power source. In this case, the internal circuitry (a transponder is included) of FOBU can pull out that operating power from a dc-battery power source. Or FOBU may exist, without being dependent on an internal electrical power source. In this case, the internal circuitry (a transponder is included) of FOBU can gain that operating power from RF appeal signal directly. U.S. Pat. No. 5,053,774 published by Schuermann indicates the typical transponder RF appeal system which may be found out by the conventional technique. A patent of Schuermann indicates the electric power supply technique about the conventional transponder structure generally. U.S. Pat. No. 4,739,328 indicates how the conventional transponder can answer RF appeal signal. Other typical modulation techniques which may be used contain for example, ISO / IEC14443 grade.

[0004]

In the conventional FOBU current supply technique used, FOBU will be activated, if it appeals for FOBU and usually provides for a signal. About this point, FOBU is not concerned with whether a user asks for such activation, but may be activated. Careless offer of FOBU may bring about the initiation and completion of dealings which are not a request. Therefore, the user of FOBU controls activation of FOBU and the FOBU system which makes it possible to restrict that dealings are completed also unnecessarily is needed.

[0005]

One of the clearer use of a RFID technique is found out by installation of the EasyPay (R) product of Speedpass (R) of Exxon/Mobil, and Shell. The transponder arranged at FOBU or a tag is used for these products. FOBU or a tag enables automatic discernment of a user, when a point-of-sale (POS) device is provided with FOBU. The discernment data of FOBU are usually passed to the database of the 3rd person server, and it refers for discernment data about a customer's (for example, user) credit, or DEBITTO account here. In the case of an instantiation-approach, a server asks for license of dealings by passing dealings and accounting data to a license entity. Once license is received by the server, authorization (clearance) will be transmitted to the point-of-sale device for completing dealings. Thus, the conventional dealings approach includes the indirect path which causes unjust indirect costs, in order to use the 3rd person server.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]

[0006]

While FOBU dealings are approved, the dealings license system which makes it possible to remove the cost relevant to using the 3rd person server is required.

[0007]

Furthermore, conventional FOBU is restricted in that these must be used near the point-of-sale device. That is, in order to activate FOBU, conventional FOBU must be arranged at transmission within the limits by which the cast is carried out with RF appeal signal. More specifically, conventional FOBU is not effective in use in the situation that a user wishes to trade at the point of two-way communication, such as a computer interface.

[0008]

Therefore, there is the need for FOBU which materializes the RFID collection technique which can conduct dealings easy through the computer interface which could use at the point of a two-way communication device, and was connected with the network (for example, Internet).

[0009]

The existing transponder-reader payment system is restricted in that conventional FOBU used in a system answers only one appeal signal further. When two or more appeal signals are used, FOBU answers only the appeal signal constituted so that it might answer. Therefore, when the RFID reader of a system offers only an appeal signal without FOBU and compatibility, FOBU is not activated appropriately.

[0010]

Therefore, FOBU which answers one or more appeal signals is required.

[0011]

The existing transponder-reader payment system is further restricted in that a payment system is linked to the source of financing related with the transponder which usually contains predetermined maximum payment. Therefore, flexibility is not offered when the payment which exceeds predetermined maximum payment is requested. This has it at the point of including the comparison with the maximum payment or the amount of money stored in the data file of the preloaded value, before the traditional method of usually processing the requested dealings provides a customer with license of dealings. [true]

[0012]

Therefore, the system which processes the request of transponder-reader payment is needed regardless of the maximum payment assigned to the related source of transponder-reader payment system financing.

[0013]

Furthermore, a traditional transponder-reader system does not permit that a user manages system user account data. This has very many problems, when a user wishes to change the source of transponder-reader system financing into the source which offers the room of available maximum payment, or when only wishing to be modification in a user's condition (for example, the address, the telephone number, an e-mail, etc.), for this reason for a transponder-reader account provider to update a user's account.

[0014]

Therefore, in order to manage accounting data, the transponder-reader system by which a user enables access restricted to transponder-reader account is needed.

[0015]

Furthermore, unlike the credit card or charge card relevant to FOBU, the existing transponder-reader system does not usually permit the means which carries out the motivation of the use of FOBU relevant to a system automatically. That

is; the conventional transponder-reader system does not offer the means which carries out the motivation of the transponder-reader system use by carrying out the motivation of the use of a FOBU product. This system is because between a system transponder and account of the charge card relevant to a transponder or a credit card is not fully distinguished.

[0016]

Therefore, the case where a system transponder is used is determined and the transponder reader which can offer the motivation of use like a parenthesis is needed.

[0017]

Furthermore, this system is restricted in that use of a credit card or a charge card and use of FOBU cannot be pursued, when these systems have a single source of financing. For example, in the system of the typical conventional technique, FOBU may be linked to the sources of financing of the convention which may be used in order to offer the fund which fills a dealings request (for example, American Express, MasterCard, Visa, etc.). The source of financing may have further the consumer credit or charge card which may be related with FOBU and may be used for contact dealings. A card user is provided with the statement which reports use of a card when a credit card or a charge card is used. However, a report statement includes the report of FOBU product use. Therefore, a FOBU user cannot do the comparison with use of the suitable card of use of FOBU diagrammatized, analyzed or related. This has many especially problems, when the source of financing is used by one or more entities (for example, a spouse, two or more employees, etc.), or when one entity can use FOBU and a separate entity can use the card relevant to the FOBU.

[0018]

Therefore, the transponder-reader payment system which makes it possible to report use of FOBU and use of a credit card by the single file is needed.

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MEANS**[Means for Solving the Problem]****[0019]****(Summary of invention)**

The system and approach of using a RFID technique, and starting and completing a financial transaction are indicated in this specification. The transponder-reader payment system indicated in this specification may contain the RFID reader which can operate so that RF appeal signal for carrying out an electric power supply to a transponder system, and receiving a transponder system RF signal, and offering transponder system accounting data in relation to a transponder system RF signal may be offered. A transponder-reader payment system can be equipped with USB or the serial interface for using, in case the PASONA rise of the RFID authentication circuit and RFID reader, and/or transponder for attesting the signal received from the RFID protocol / sequence controller who telecommunicates with one or more appeal transponders for providing a transponder with an appeal signal, and the transponder is carried out. A transponder-reader payment system can be further equipped with FOBU for offering the authentication signal for verifying that it was approved that a transponder and/or a RFID reader operate within a transponder-reader payment system including one or more transponders (for example, module) which answer one or more appeal signals. Thus, FOBU can answer two or more appeal signals offered on a different frequency. Furthermore, FOBU may contain USB or the serial interface for using it using a computer network or a RFID reader.

[0020]

The RFID system and approach by this invention may contain the transponder which it is possible for shape to be taken by other form factors (for example, a wrist watch, a key chain, a cellular phone, etc.) of FOBU, a tag, a card, or arbitration, and to be provided for appeal, and is obtained. In this point, although it is indicated that a transponder is materialized by FOBU in this specification, this invention is not limited such.

[0021]

A system is further equipped with the RFID reader constituted so that the stationary RFID recognition signal which may be transmitted from RFID through radio frequency (or electromagnetism) propagation might be transmitted. FOBU may be arranged near the RFID reader so that a RFID signal can call to FOBU and can start a FOBU discernment procedure.

[0022]

In an instantiation-1 operation gestalt, FOBU and a RFID reader can be engaged in mutual recognition as a part of discernment process. If a RFID reader contains the system transponder by which it was approved for receiving the enciphered information and storing the information in FOBU memory, it can identify FOBU. Similarly, if it appeals for FOBU by the RFID reader, it can identify that receiving the information in which the RFID reader was enciphered and stored was approved. When a RFID reader and FOBU attest each other with the sufficient result, FOBU can transmit the specific information that the dealings account (an unit or plurality) to which FOBU relates is identified to a RFID reader. A RFID reader receives information, and passes information, and can make completion of dealings easy. In an instantiation-1 operation gestalt, a RFID reader can transmit information to the point of a two-way communication device (for example, POS or a computer interface), in order to complete dealings. The mutual recognition process indicated in this specification supports guaranteeing transponder-reader payment system security.

[0023]

In another instantiation-operation gestalt, FOBU by this invention includes a means to complete dealings through a computer interface. In case it may connect with a computer using USB or a serial interface and FOBU completes dealings through a network (for example, Internet), in order to use it, FOBU account information may be transmitted to a computer.

[0024]

In still more nearly another instantiation-operation gestalt of this invention, the system to which use of a transponder-reader system transponder (for example, FOBU) is urged is offered. This system distinguishes between use of FOBU which shares the same source of financing as FOBU, and charges or use of a credit card. When FOBU is used, a system can provide a user with the motivation based on the criteria determined in advance by the FOBU issuer. Furthermore, when the preloaded FOBU system is used, this invention recognizes the time of funds being loaded to a related FOBU preloading value data file, or reloading. This invention can offer the remuneration point (reward point) further based on the criteria relevant to loading or a reloading action. Furthermore, the system by this invention can carry out the motivation of a customer's special agreement. In this case, a system can receive a FOBU dealings request based on the marker or other identifiers relevant to a customer, and it carries out the motivation to a FOBU user. A marker may be contained in discernment of dealings, the customer discernment offered by dealings, or the combination of both these.

[0025]

In still more nearly another instantiation-operation gestalt of this invention, the system which enables a FOBU user / owner, as for a system, to manage the account relevant to FOBU is indicated. For example, a user is provided with all or partial FOBU account information stored in the account provider database for updating population statistical information, the source of account financing, and/or account constraint (for example, maximum payment, a personal identification number, etc.). A user may be provided with access to all or partial account by the telephone through an off-line communication link through a network (for example, online). For example, access to the system with which the FOBU user delayed the communication link with an account provider database may be offered, and such a system may contain the kiosk which provides for example, an account provider system with batch transmission here. Thus, a FOBU user / owner can update account information to the time amount which receives the information which is real time (with for example, a telephone or online) or, by which the account provider was updated in account information (for example, off-line).

[0026]

In the further instantiation-operation gestalt, this invention offers the approach of processing a dealings request, and thereby, before requesting financing from the source of financing, and/or before verifying that the amount of money for completing dealings is available, the amount of a dealings request may be recognized. Thus, dealings may be recognized when dealings and/or account meet the specific predetermined license criteria. Once the criteria are met, the agent (for example, customer) who dealings are attested and requests will be provided with authentication. In one example, the payment to dealings is requested from the source of financing to offer and coincidence of the authentication to a customer, or immediately after. In another example, the payment of dealings is requested to the period after the time of a customer being provided with license.

[0027]

The structure of these descriptions of a system and an approach, other advantageous points, a system, and the various instantiation-operation gestalten of an approach and actuation are indicated below.

[0028]

The attached drawing which the same sign shows the same element shows the instantiation-operation gestalt of this invention, and it is used in order to explain the principle of this invention with a publication.

[Translation done.]

NOTICES

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[0131]

[Drawing 1 A] Drawing 1 A shows the system of the instantiation-RFID base by this invention, and the instantiation-component used here for completion of FOBU dealings is shown.

[Drawing 1 B] Drawing 1 B shows the instantiation-personalization system by this invention.

[Drawing 2] Drawing 2 is the mimetic diagram of instantiation-FOBU by this invention.

[Drawing 3] Drawing 3 is the mimetic diagram of the instantiation-RFID reader by this invention.

[Drawing 4] Drawing 4 is the instantiation-flow chart of the instantiation-authentication process by this invention.

[Drawing 5] Drawing 5 is the instantiation-flow chart of the instantiation-decision process of the protocol/sequence controller by this invention.

[Drawing 6 A] Drawing 6 A is the instantiation-flow chart of the FOBU personalization process by this invention.

[Drawing 6 B] Drawing 6 B is the instantiation-flow chart of the FOBU personalization process by this invention.

[Drawing 7 A] Drawing 7 A is the instantiation-flow chart of the RFID reader personalization process by this invention.

[Drawing 7 B] Drawing 7 B is the instantiation-flow chart of the RFID reader personalization process by this invention.

[Drawing 8] Drawing 8 is the flow chart of the instantiation-payment / dealings process by this invention.

[Drawing 9] Drawing 9 is another mimetic diagram of instantiation-FOBU by this invention.

[Drawing 10] Drawing 10 is drawing of payment / dealings process of FOBU by this invention by which instantiation-preloading was carried out.

[Drawing 11 A] Drawing 11 A is drawing of the FOBU account reloading process by this invention by which instantiation-preloading was carried out.

[Drawing 11 B] Drawing 11 B is drawing of the FOBU account reloading process by this invention by which instantiation-preloading was carried out.

[Drawing 12] Drawing 12 is drawing of the instantiation-direct link payment / dealings process by this invention.

[Drawing 13] Drawing 13 is drawing of another instantiation-payment / dealings process by this invention.

[Translation done.]

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DRAWINGS

[Drawing 1 A]

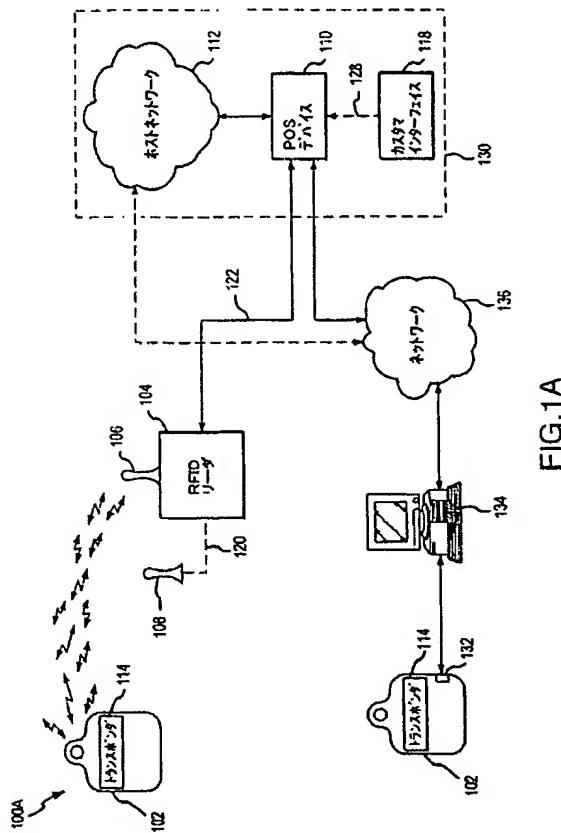
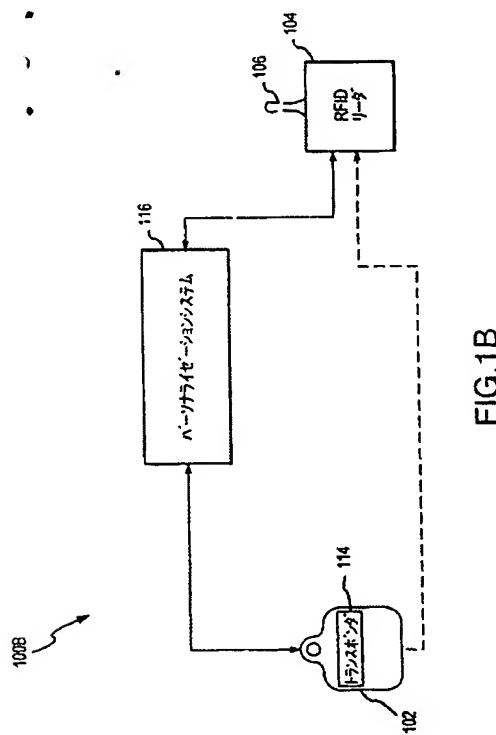
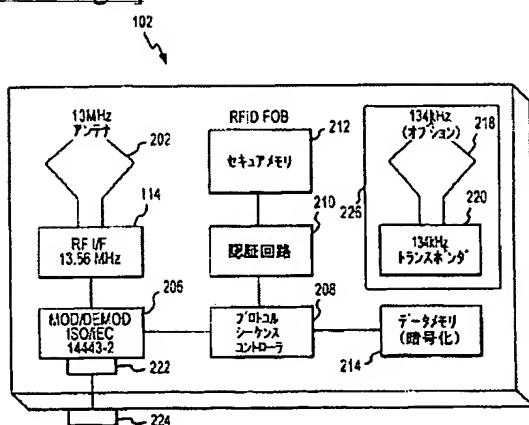


FIG.1A

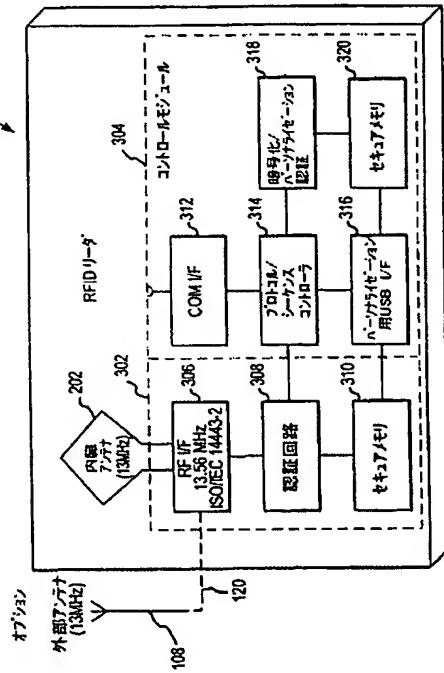
[Drawing 1 B]



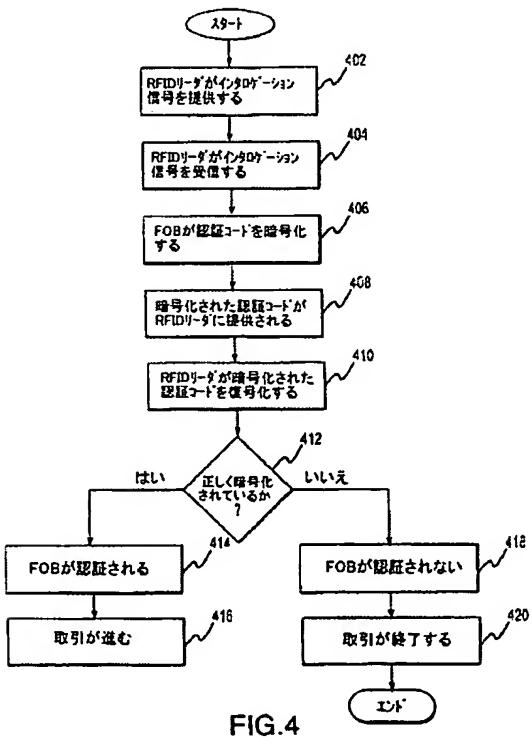
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Drawing 5]

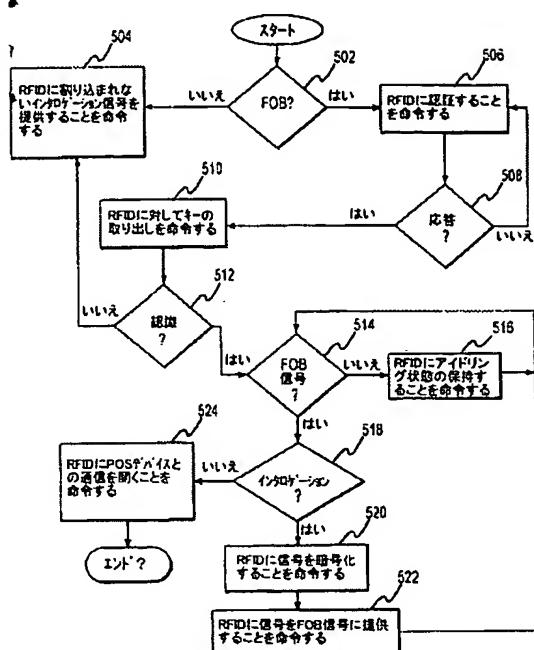


FIG.5

[Drawing 6 A]

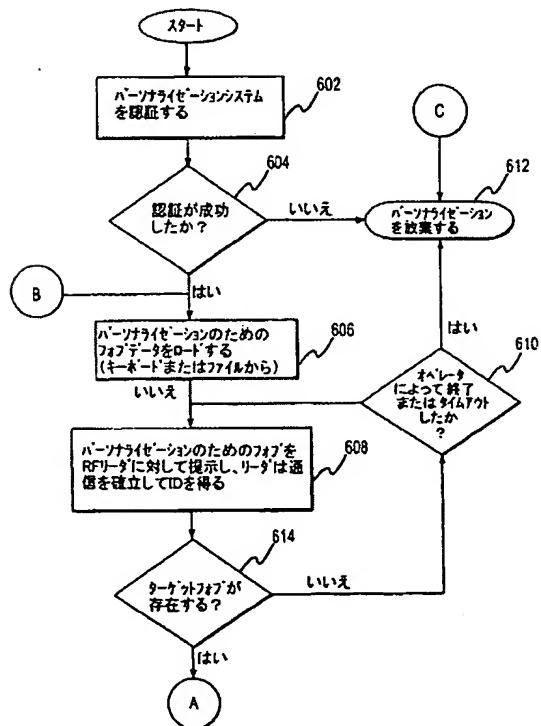


FIG.6A

[Drawing 6 B]

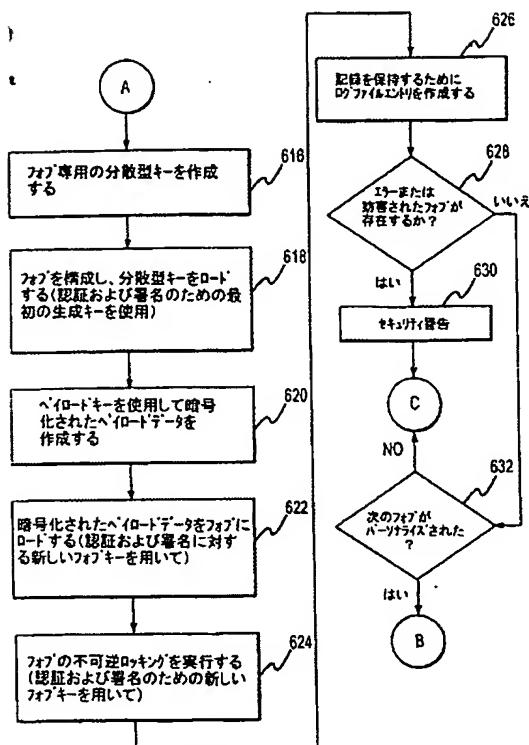


FIG.6B

[Drawing 7 A]

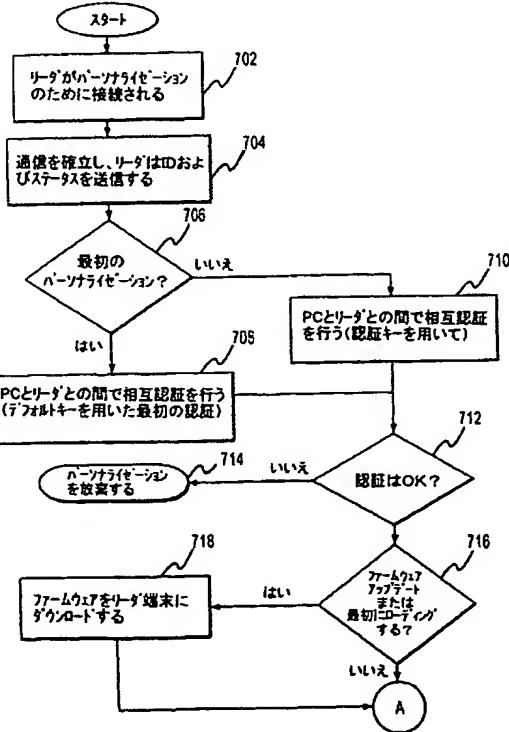


FIG.7A

[Drawing 7 B]

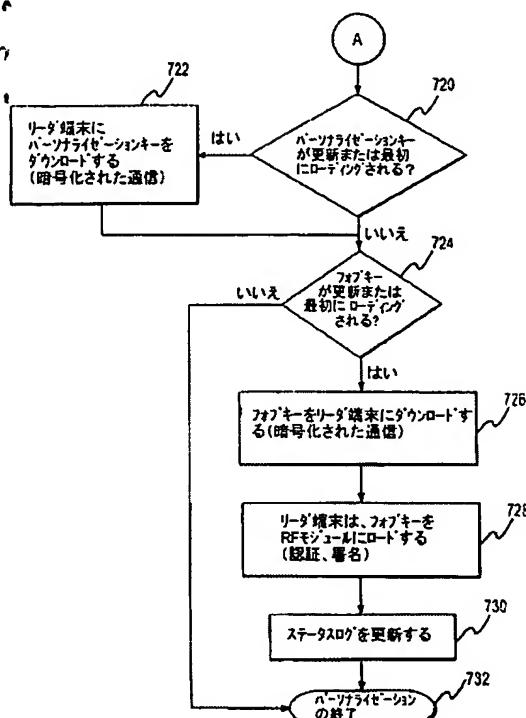


FIG.7B

[Drawing 8]

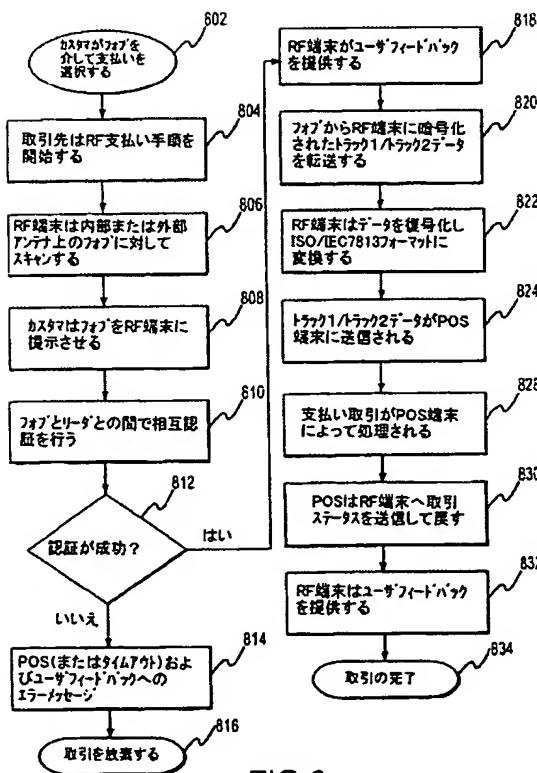
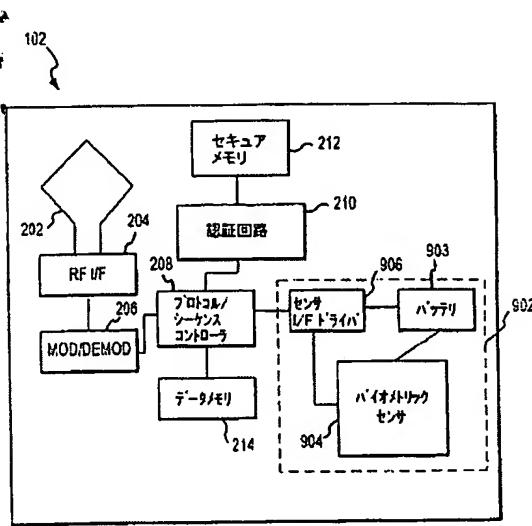
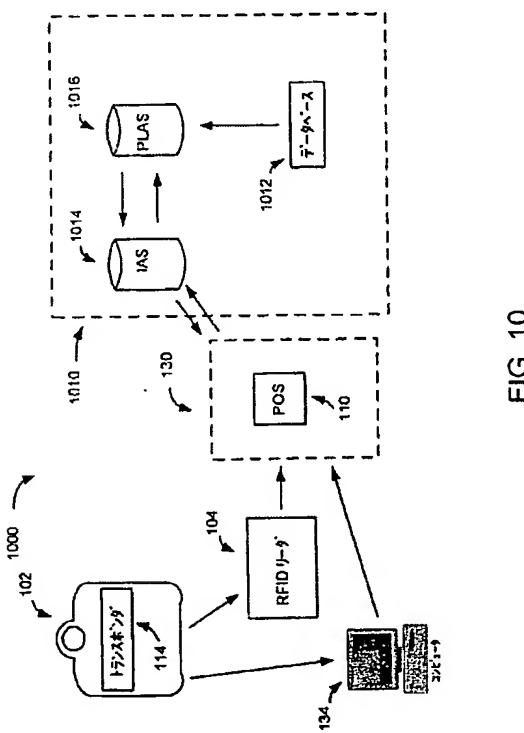


FIG.8

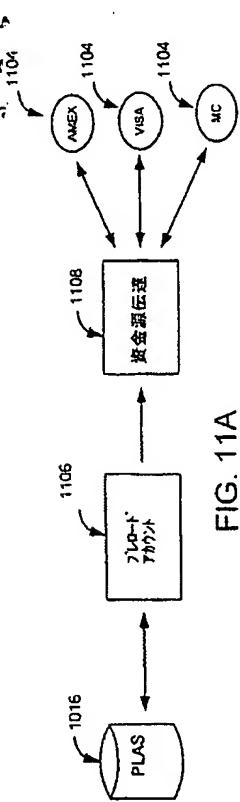
[Drawing 9]



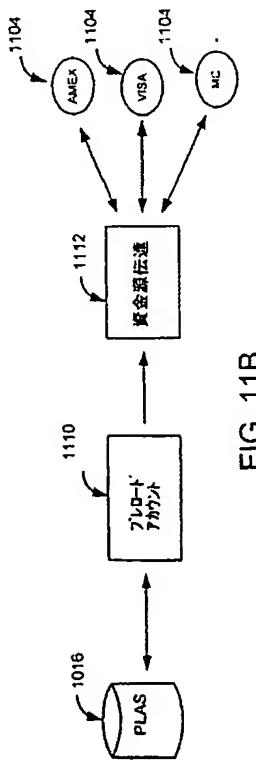
[Drawing 10]



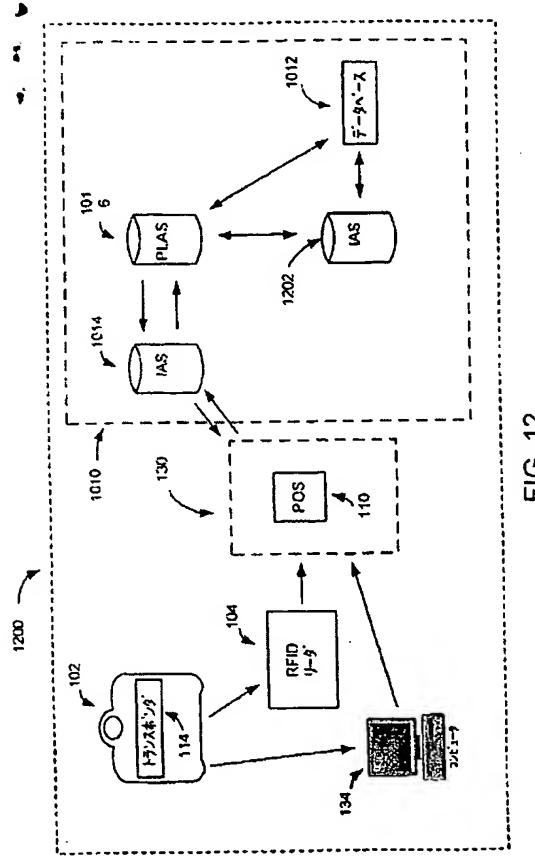
[Drawing 11 A]



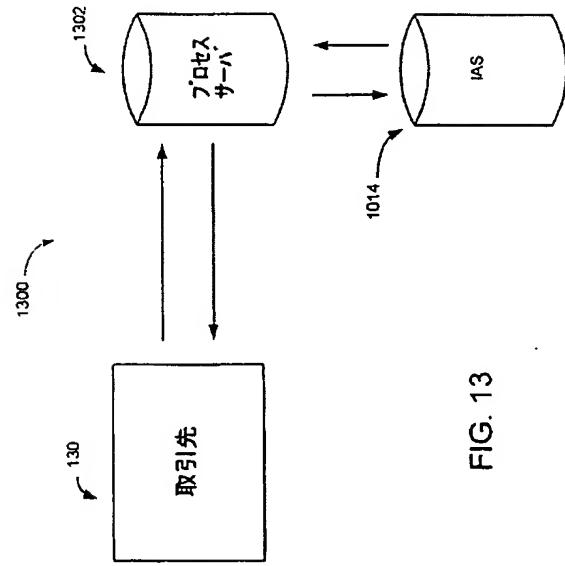
[Drawing 11 B]



[Drawing 12]



[Drawing 13]



[Translation done.]